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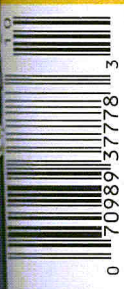


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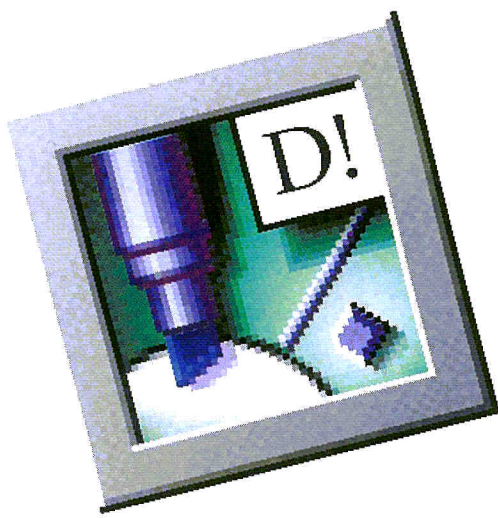


Object • Enterprise

NeXT has the client
Hewlett-Packard has the servers



The Best Mission Critical Applications Are the Ones You Didn't Have to Write

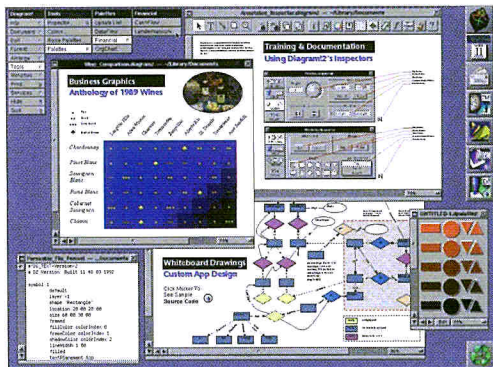


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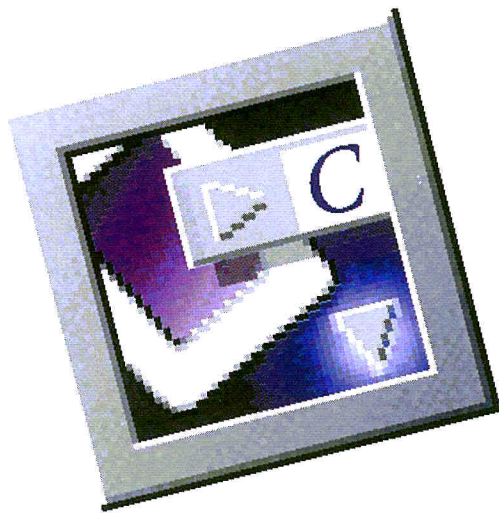
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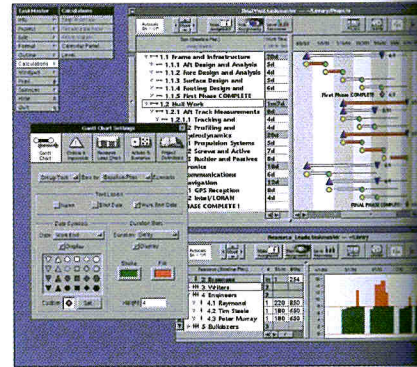
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REVIEW

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After two months, NEXT

Scott Kim helps you get from here to there

NEXTWORLD

Vol. 3, No. 6 OCTOBER 1993

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T H E N E X T W O R L D

Once in the vanguard of the crusade for the personal workstation, commercial NEXTSTEP developers now seem like an afterthought in a market focused on specialized custom applications. On Wall Street, it turns out, there isn't much call for great publishing software.

Even when the custom apps are deployed, it's not a sure thing that users will want general-purpose productivity applications. At Chrysler, users will not be allowed to add their own software to special-purpose NEXTSTEP systems. Then there is SoftPC, which could open the floodgates to DOS and

Windows apps as productivity tools on NEXTSTEP boxes. It's a pretty dreary picture for today's suffering NEXTSTEP developer.

Or is it? For the first time ever, NEXTSTEP is selling in substantial volume. It follows that there is more opportunity than ever to sell commercial software into the NEXTSTEP market - if it's the right kind of software.

The old model of independent software vendors selling horizontal applications doesn't fit with the user's need to mix and match parts in an object-oriented custom environment. The ISVs who thrive in the era of the mission-critical custom app will have to find a new model. Here are some suggestions:

By hook and crook. Make it easy for users to integrate your app into their custom environment. Athena Design's Mesa is on thousands of trader workstations because its API lets developers merge it into a custom screen. Custom apps can similarly integrate commercial tools for telecom, drawing, and just about any function. Implement Object Linking, use DBKit, provide Services. Put out as many hooks to the outside environment as possible.

Shed excess baggage. Monolithic is out, granular is in. As you design your new applets, leave out the extras. Target a very specific functionality.

In the meantime, emulate Lighthouse Design and sell your class libraries. A real ObjectWare market is still waiting for a channel of distribution and an accepted method of licensing and royalties, but you can help make it happen as you pick up some incremental revenue.

Vertical reality. In the custom-app world, the biggest need is for industry-specific tools. Companies like Anderson Financial are doing quite well on Wall Street by providing software specific to financial applications. Similar opportunities exist in health care, telecommunications, and other vertical markets, if you really understand the content of those industries.

Be resourceful. NeXT can't market its environment as a standout graphics platform, but you can. The relationship between Gold-leaf and Epson points in the right direction. Going further, the NEXTSTEP graphics developers could pool their resources and carry on the banner. Now that NeXT is selling software through channels, there's a chance to add value and sell it to graphics VARs and integrators.

Keep the faith. Though its goals are more modest, NeXT's developer relations group is still out there advocating. As NEXTSTEP

gains momentum, the pendulum will swing back to support for third-party opportunities. And don't worry about SoftPC: It provides a comfort level when buying but won't seriously displace demand for native apps.

Things change quickly in the NeXT world. The horizontal app you designed two years ago may not fill today's market needs. But if you're quick on your feet and can adjust to users' needs, there is more opportunity than ever to sell great shrinkwrapped software in the NEXTSTEP market. ♦

DAN RUBY is editor in chief of NeXTWORLD.

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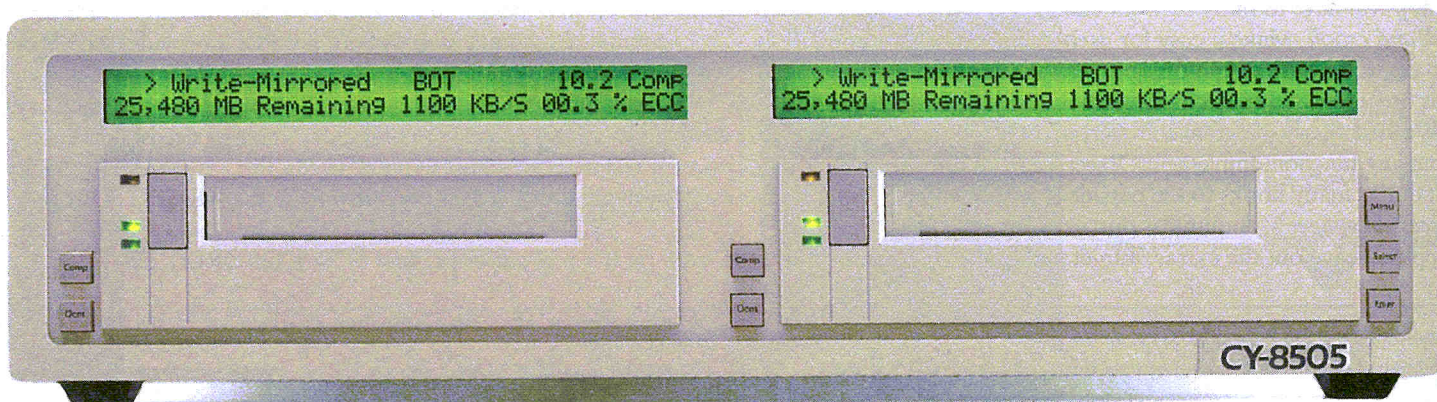
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Dog days

With the August 1993 *WORLD* has slipped. only 39 pages long, at one-third the size of previous issues. With the NeXT market it is right now, I find it hard that you could not find it in your publication.

Our company received NeXT as our development choice and will be re-evaluated of our custom applications. NEXTSTEP. We also have experienced growing pains from mainframe to object client-server computing to see articles on topics: client-server, setting up foundation, selling OO languages, costs related to the total-application support so on.

ERIC GWIAZDOWSKI
Hudsonville, Michigan

In switching to monthly we are publishing approximately 39 percent more editorial pages than we previously in one bimonthly issue. We primarily noticing in the our recent issues is the NeXTConnection's advice. The good news is that *WORLD's* advertising business size — is growing as has become re-energized STEP-for-Intel customers.

Your suggestions for focus are exactly the kind I asked for in my column. I encourage readers to send and input about NeXT to me at druby@nextu — Dan Ruby

The two Davids

I am writing this letter to number of mistakes in the "Spreadsheets" review (*NeXT* August).

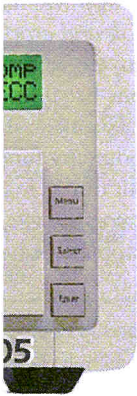
- Mesa does allow a number of windows to be the same worksheet.

- Mesa supports a number bar (or column) chart type.

- Mesa can print the without the Report Inspector Excel or 1-2-3. The Report

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LETTERS

Dog days

With the August 1993 issue, NeXT-WORLD has slipped. This issue is only 39 pages long, approximately one-third the size of previous issues. With the NeXT market changing as it is right now, I find it unimaginable that you could not find more to cover in your publication.

Our company recently selected NeXT as our development tool of choice and will be re-engineering all of our custom applications to run on NEXTSTEP. We also have been experiencing growing pains in our move from mainframe to object-oriented client-server computing. I would like to see articles on topics related to client-server, setting up an object foundation, selling OO to nonbelievers, costs related to the change, custom-application support issues, and so on.

ERIC GWIAZDOWSKI
Hudsonville, Michigan

In switching to monthly frequency, we are publishing approximately 50 percent more editorial pages in two issues than we previously produced in one bimonthly issue. What you are primarily noticing in the thinness of our recent issues is the absence of NeXTConnection's advertising insert. The good news is that NeXT-WORLD's advertising base – and our issue size – is growing as the market has become re-energized with NEXTSTEP-for-Intel customers.

Your suggestions for editorial focus are exactly the kind of feedback I asked for in my column last month. I encourage readers to send their ideas and input about NeXTWORLD to me at druby@nextworld.com.
– Dan Ruby

The two Davids

I am writing this letter to correct a number of mistakes in the “Dueling Spreadsheets” review (NeXTWORLD, August).

- Mesa does allow an unlimited number of windows to be opened to the same worksheet.
- Mesa supports a mixed line/bar (or column) chart type.
- Mesa can print the spreadsheet without the Report Inspector, like Excel or 1-2-3. The Report Inspector

is available to allow users to store an unlimited number of reports with each worksheet.

Regarding Mesa's SQL access capabilities, Mesa will allow all SQL statements to be executed, not the limited subset allowed by DBKit. Further, because a query can contain spreadsheet data, queries can be built by SQL jocks in the MIS department to allow casual users to enter data into cells and generate the query from that data. Casual users can be safely isolated from the Query Inspector (but still be allowed access to the queries), thus preserving the data integrity of the corporate databases.

I would also like to take issue with the classification of Mesa as a “basic” spreadsheet. While Mesa offers easy access to basic spreadsheet features, it also contains hundreds of powerful features that make building, using, and maintaining spreadsheets quicker and easier.

DAVID POLLAK
President,
Athena Design
Boston

Congratulations on the “Bright Lights, Small City” editorial (NeXTWORLD, September). In NeXTWORLD's earlier days, your reviewers tended to overlook minor problems. Now, the reviewers go through products with a fine-tooth comb. This seems to be inversely proportional to the ad dollars we spend with the magazine. I support NeXTWORLD not because folks on your staff are my friends, but because it is a quality and professional publication.

DAVID POLLAK
President, Athena Design
Boston

BoB dissent

I am amazed at your choice of NXFax for a Best of Breed award (NeXTWORLD, August). When you purchase NEXTSTEP, all the fax software is built in – fax rendering, scheduling, cover pages, queuing, and adminis-

tration. When you purchase a fax-modem, you pay for the hardware that lets you send faxes over phone lines. NXFax is just a piece of glue between the supplied NeXT software and the supplied fax-modem. To my mind, it is overpriced at \$135.

JASON BRIGHT
Ontario, Canada

NXFax received the Best of Breed award for Communication and Emulation because it solved a critical problem – making high-speed modems work for both fax and data at the same time. Without it, you'd have to dedicate a separate modem and telephone line to faxing. – NW



That's mister runt

Thanks for the mention in “Runts of the Litter” (NeXTWORLD, August). Just to clarify things, I should tell you that our average sale in Russia is over \$100,000 and we accept only greenbacks. Our business is exploding and Talus will reach the 100-employee mark by the end of this year. Talus now has ten shipping products for NEXTSTEP – all, I might add, developed in Russia. I believe that

this makes us the largest single developer of NEXTSTEP products in the world. So, yes, we feel that the Russian market is worth the effort.

STEVE SARICH
President, Talus Imaging and
Communications Corporation
Houston, TX

Needs printer options

NeXT needs to support non-PostScript printers in order to compete with other systems on the market. It's like not being able to replace a Goodyear

tire with any other brand-name tire. Users need the freedom to choose any type of printer they want.

VANNAK RATH
Richmond, VA

See our report on NeXT's forthcoming third-party printer license in this issue's NeXTWORLD Extra. This will permit developers to bring more non-PostScript devices to market.
– NW

ZZvolume out of focus

In “Pumping Up the Volume” (NeXTWORLD, August), Joel Orr calls ZZvolume's performance “adequate to slow.” In fact, the same architectural model on any of the modelers on NEXTSTEP will take from ten to 20 times longer than ZZvolume to display (this is very easy to check using the RIB transfer). To compare with other CAD software, the same model (on the same Intel machine) will take three times longer on Autocad for hidden-face removal.

GERY DIVRY
Arès
Lyon, France

For the record

In our review of Image Agent (“Reviews Desk,” August), we printed the telephone numbers for Baccus incorrectly. The correct voice-mail number is 310/820-9145.

In “Next Generation” (June/July), development of the Val Verde Unified School District's library catalog system was incorrectly attributed to Virginia Technical University. The on-line public-access catalog was developed by Blacksburg, Virginia-based VTLS.

In “Easier setup on tap for 3.2” (NeXTWORLD Extra, September), we misspelled the name of NeXT's director of development environment product marketing. His name is Rick Jackson, not Rick Johnson.

NeXTWORLD welcomes your comments. Please send them to Letters at NeXTWORLD, 501 Second St., San Francisco, CA 94107; or e-mail: letters@nextworld.com.



SIMSON00001749

ware development into old comprise System-heads, and end users. nit. MIS departments l support for end-user apps that people in the e performed within rather than avoid, all

dan was in the trenches Texas. After two years the most experience of – at the same time –

l simply: “We want to fish.” likes to stare out at the lder, Colorado office. ghts high, he says, and /TC will be organized r corporate partners (as ts. OTC staffers with oject from any office, hnology, sharing and

pository, which resides d access and encouraged software, but partici- cipation, Systemhouse tWare market. “We’re objects on behalf of all out royalty payments, er repository.” n at some corporations, em hope of success. e easy in ten years. For is of power. The older nent, where the technol- t all. We can’t give any- rship,” Jordan says. ase System is a case in t wasn’t able to get lucts, including replace- nterface objects from cts developed for other e first system to track pharmaceutical notes,

for moving quickly, but ta sites, where research id the results published by year-end. Engineers objects and development her areas of J&CJ’s busi- available for the OTC’s

looking at how to reuse re is developed in finan- cions. And ...



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Staringer's winning project was a financial Risk Management System (RMS), a program that helps Creditanstalt's managers monitor their exposure to fluctuations in rates of foreign exchange, interest, and inflation, or events, regulatory and otherwise. Rather than reusing objects from previous efforts, as most entrants in this category did, RMS stood out because it reuses entire applications – notably Lotus Improv for reporting and charting, Wolfram Research's Mathematica for its computational engine, and SQL (Structured Query Language) databases for its price quotes. RMS also won kudos for its flexibility and extensibility, since it allowed end users to build new kinds of securities and risk models on their own, using NeXT's InterfaceBuilder and Mathematica simulations.

Staringer is the driving force behind the Financial Markets Laboratory (FML) at the Technical University of Vienna, which built RMS in partnership with Creditanstalt. FML is one of 14 institutes within the school's giant Informatics department, but it's no cog in the academic



Austrian Ph.D. Werner Staringer saw the light in risk management.

machine. Like its founder, FML is an ambitious innovator. It is unique in its focus on real-world problems, its encouragement of student involvement (both graduate and undergraduate), and its fund-

Risk Manager

ACCLAIMED ACADEMIC

WHEN EMCEE STEVE JOBS PRESENTED THIS YEAR'S COMPUTERWORLD OBJECT Application Award for Best Application Utilizing Reusable Components Leveraged From or For Use in Other Projects, Werner Staringer didn't realize the glass trophy was as hefty as its title. "The crystal piece was not fixed on the pedestal, so I dropped it on my way back. Almost everybody who gets it in hand for the first time does the same thing," the 30-year-old Ph.D. says.

Of course, Staringer's wasn't the only blooper at the ceremony, nor was he the only NEXTSTEP contender. Jobs needed a few seconds to pronounce the name of Staringer's sponsor, "Creditanstalt Bankverein of Vienna, Austria," and the list of finalists included afs:TRADE, an object kit for securities-trading applications from Springhouse, Pennsylvania-based Anderson Financial Systems.

Critical Success

P R E S S C L I P S

NEXTSTEP OPENED TO RAVE REVIEWS IN THE MAINSTREAM PC PRESS AS the usually bare-knuckled critics took their first look at the operating system running on Intel-based hardware.

PC Magazine, *Byte*, *PC Week*, and *Computerworld* all ran strongly favorable reviews and evaluations during the summer. Mixed in with cautionary notes about the OS needing more drivers and the relative paucity of shrinkwrapped apps were comments about NEXTSTEP's "breathtaking interface" and how it "reduced development efforts by anywhere from three to 100 times those of other platforms and languages" and "ran like a Swiss watch." Typical excerpts are shown below.

Garry Ray, *Computerworld* senior editor, explains that the magazine's "Firing Line" evaluation of products gauges reactions and expectations from typical users. "People are pretty willing to express both the positive and negative," he says, noting that even with that, NEXTSTEP got the highest rating to date - 4.3 out of a possible 5.0 - of any product evaluated.

That fact was further surprising, because *Computerworld's* readership comprises mostly CIOs and "dyed-in-the-wool MIS types," Ray says. NEXTSTEP was supported so strongly that even though "three out of the four respondents mentioned [NeXT's] financial situation as being a concern, they immediately dismissed it and said they would buy the OS. That's not common in people who make large purchasing decisions. It's pretty unusual, in fact. The product would normally not get a hearing whatsoever," he says.

Steven J. Vaughan-Nichols, a longtime computer journalist with experience on many UNIX variants who authored the *PC Magazine* article, wasn't surprised by what he found. "NeXT's OS has always been seen as being a bit wonky," he says, "a wonderful, nifty, but overpriced system." The transition to commodity-priced machines, however, brought the speed/cost ratio down, he explains. NEXTSTEP still won't be for everyone, but "with a lower price for now, and possibly lower prices in the future, NeXT could really gain."

The articles included lab reports, full reviews, and first looks. In all cases, comparisons were made to other operating systems, with NEXTSTEP getting the nod in networking, development tools, interface, and ease of use. The *PC Week* review went the farthest in comparing NEXTSTEP to Solaris x86 for PCs and Novell's UnixWare and testing it with a variety of PC-based networking and database products. All pointed out that NEXTSTEP runs faster on white hardware than black.

Attention to the benefits of NEXTSTEP in the press is a new trend, which gets away from all the negatives that NeXT has weathered in the past, says Paul Cubbage, principal analyst of the software group at San Jose-based Dataquest. "All this press is very good for NeXT. It's the old adage: 'I don't care what you say about me as long as you spell my name right.' " ♦

by ELIOT BERGSON

First and foremost is a breathtaking interface - the Workspace Manager - that rivals and even surpasses that of the Mac . . . NeXTStep worked like a fine Swiss watch both in standalone mode and concurrently as a node on NetWare and TCP/IP networks. . . . We foresee NeXT-Step taking a place similar to that of the Macintosh: an operating system that's not for everyone, but extraordinarily powerful and easy to use for those willing to travel a path away from the mainstream.
PC Magazine, August 1993



TEN MOST WANTED

Consistently favorable ink moves public-relations improvement off the list. Otherwise, the summer dog days produced steady progress toward 3.2 shipment and a revitalized sales operation. Thanks to Thyl Engelhardt and Paul Meier for their input this month.

RANK	LAST ISSUE	ISSUES ON LIST	ITEM	COMMENT
1	1	3	Drivers, drivers, drivers	Ship 3.2 on time
2	-	1	SoftPC shipment	At native speed
3	3	3	Expanded indirect channel	What gives at NeXT-Connection?
4	6	9	Expanded marketing message	Desktop unification
5	2	2	Direct sales results	Accelerate cycle
6	-	1	Working notebooks	See #1
7	7	4	Aggressive IHV marketing	Don't wait for orders
8	4	2	PDOs everywhere	Key to O•E results
9	5	8	NeXT management stability	Amazing: No shake-ups this month
10	10	2	NEXTSTEP 4.0 feature set	The vision thing

[NeXT is] delivering system software that offers many of the benefits of object orientation that Taligent and Cairo still only promise. . . . NextStep is more complete [than Windows NT] and it is easier to develop applications. . . . By providing commonality among the applications and utilities, Next has made its operating system very easy to learn - despite its Unix underpinnings. . . . While it's unlikely that an operating system with such a small following and so demanding of system resources will ever come to dominate the huge Intel arena, the move to a platform where even high-end hardware can get real cheap real fast will help to ensure this elegant operating system's future.
Byte, August 1993

NeXT Inc.'s NEXTSTEP for Intel Processors 3.1 is not your Dad's Operating System. It combines an arresting interface with excellent connectivity, multitasking muscle and a powerful object-oriented development environment. . . . NEXTSTEP is the most approachable and full-featured of the Unix systems available on the Intel Corp. platform. And for developers of corporate information systems and custom applications, NEXTSTEP provided an integrated object-oriented programming environment and access to databases.
PC Week, June 28, 1993

Evaluators said Next, Inc.'s NextStep for Intel is a robust implementation of the operating system and development environment. They were surprised that performance on the Intel platform exceeded that of Next's proprietary hardware. . . . The relative shortfall of commercial applications for NextStep is of continuing concern. But the evaluators claimed the NextStep development environment outweighs this issue. . . . From a developer perspective, the evaluators said NextStep for Intel has no peer. Starting with the complement of developer tools such as Interface Builder and extending to the enhanced and simplified Unix utility programs, NextStep has few rivals as an operating environment, the evaluators said.
Computerworld, June 14, 1993

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nks to Thyl Engelhardt

- COMMENT
- Ship 3.2 on time
 - At native speed
 - What gives at NeXT-Connection?
 - Desktop unification
 - Accelerate cycle
 - See #1
 - Don't wait for orders
 - Key to O•E results
 - Amazing: No shake-ups this month
 - The vision thing

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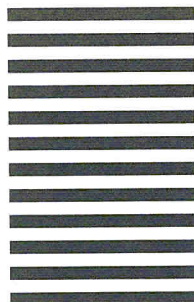
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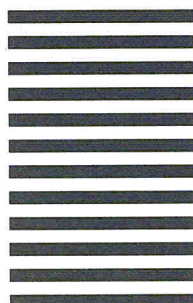
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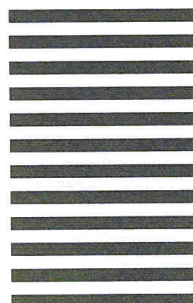
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NeXTWORLD

New technology needs a
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New distribution channels
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PC culture did not ape the
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PHOTOGRAPH BY ERIC MILLETTE

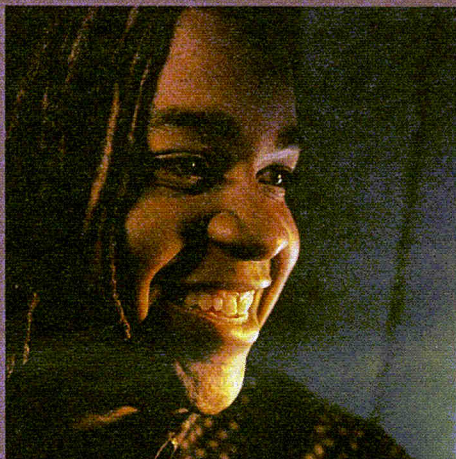
COMMUNITY

Object Where?

COMMENTARY

New technology needs a new business model. Look at the PC. Despite being saddled with the insufferable DOS, a draconian development environment, a somnolent corporate parent (IBM), a deficient architecture, and a laundry list of minor incompatibilities, it continues to be a spectacular success because the economics of personal computers, and their subversive spirit, are simply too compelling.

There is nothing in the personal-computing marketplace to remind the observer that a vibrant market for minicomputers and mainframes preceded it. The PC world made its own rules and built organizational, cultural, and technological solutions suited to its marketplace. Licensing and support were rethought. New distribution channels emerged. Teenage wonderkinds built empires. The PC culture did not ape the precepts of the mainframe, and, as a matter of fact, actively avoided them.



OPN's Marcos J. Polanco

The NEXTSTEP community, in contrast, has failed to make a similar break with the past. Our applications suffer from the same feature bloat as monolithic DOS software, and few have APIs accessible to other developers. While these applications are generally of extraordinary quality, they have not helped NEXTSTEP reach the mythical levels of integration promised us by focused, interconnected component software, the hallmark of object-oriented operating systems. If Macintosh developers had ignored their primary competitive advantage—the graphical user interface—that platform, too, would have just 50,000 users.

Embracing component software is not a trivial exercise in an industry built to support horizontal, mass-market applications like the outrageously successful Microsoft Office. Rather

than being shoehorned into the PC business model mastered in Redmond, the NEXTSTEP community must create the technical and organizational structures necessary to support a massive ObjectWare marketplace. ObjectWare Professionals Network (OPN) was founded to catalyze this very infrastructure.

OPN has engaged in an electronic discussion over the past few months, uniting users, systems integrators, consultants, and independent software vendors in a common forum in which concerns, experiences, and solutions can be shared. We intend to publish an array of standard protocols, thus provoking an explosion of front and back ends for each, much like the DBKit has spurred the creation of databases, report writers, and form builders.

But we have also unearthed a rat's nest of questions: How will end users take advantage of the bulging crop of objects? How will licensing and support work when users customize their environments with dozens of components from disparate vendors? Who will certify the purported standards-compliance of objects? Will customers purchase objects at Egghead?

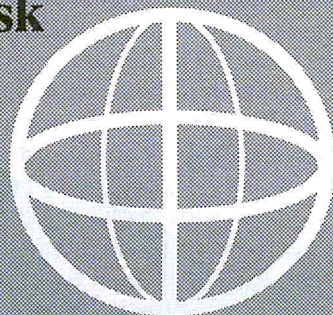
By answering these questions, OPN and others interested in developing an object market will help lay the groundwork for NEXTSTEP's success, not by battling the PC on its own turf but by transforming the industry to deliver the promise of NEXTSTEP: a plug-and-play, mix-and-match user environment capable of supporting the unique objectives of any business or individual.

MARCOS J. POLANCO is director of ObjectWare Professionals Network (OPN). He can be reached at shiva@vega.stanford.edu. The OPN FTP site is netcom.com:/pub/opn.

PHOTOGRAPH BY ERIC MILLETTE

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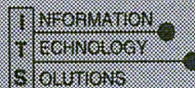


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K I T D E V E L O P E R

DAVID JAFFE'S MUSIC HAS BEEN PERFORMED IN MAJOR HALLS AND FESTIVALS all over the world, but the NeXT computer's 1988 debut at San Francisco's Davies Symphony Hall was the greatest performance of his career.

"As I sat there listening to Daniel Kobialka perform the Bach A-minor violin concerto accompanied by a Music Kit orchestra of crystalline-plucked strings being synthesized in real time by the NeXT DSP (digital signal processor), I felt that this was why we had made the NeXT computer. The whirring and humming of the new technology seemed to fade away, leaving us to close our eyes and experience the music," Jaffe recalls.

It was Jaffe's backstage work on the Music Kit, a radical approach to music programming that put object-oriented building blocks in the hands of programmers and musicians alike, that made the duet possible. Before, music applications were coded in procedural languages like C, while academics used specialized languages to code each composition from scratch. The kit was unique in combining the ability to design instruments in software with the real-time interactivity afforded by the use of MIDI (Musical Instrument Digital Interface). Never before had a computer company taken music so seriously.

Along with Julius Smith, Jaffe had been plucked from the Center for Computer Research in Music and Acoustics at Stanford University two years earlier, where they had been working on new techniques for the physical modeling of acoustic instruments, essentially crafting new instruments in software. Steve Jobs had already decided that his new computer would have CD-quality sound; it was Smith who convinced him that including a DSP was the best way to get it. Smith and Jaffe at first planned a monolithic demo application designed to show off the capabilities of the included DSP, but they quickly decided that a kit was a more flexible approach that would result in a wider variety of applications.

That decision was based on Jaffe's musical expertise. Before pursuing his doctorate in computer music, Jaffe had been a folk musician, playing a variety of stringed instruments, including mandolin, violin, and banjo, in a bluegrass band called Bottle Hill. An early run-in with



Since NeXT lost interest in the Music Kit, composer/developer **David Jaffe** has returned for an encore.

Carpal Tunnel Syndrome, which he blames on "bad violin technique," turned him from a player into a composer. As a former ham-radio operator who's been tinkering with machines since he was a kid, he was immediately attracted to electronic music. "I like the hands-on aspect of it," explains Jaffe. "In traditional music, there are three different roles: The composer writes the music, the instrument builder constructs the instrument, and the player plays the instrument. Rarely is that the same person."

Jaffe's own background as musician, composer, and programmer makes him uniquely qualified in making sure that computer music is something other than the soulless sound of a new machine. Jaffe is currently shepherding the continued development of the Music Kit in his new role as a software consultant to Stanford. His newest challenge will be to bring the expressive capabilities of the Music Kit to industry-standard Intel-based computers. But the music community need not worry. If anybody can make a PC sing, it's David Jaffe. ♦

by LEE SHERMAN

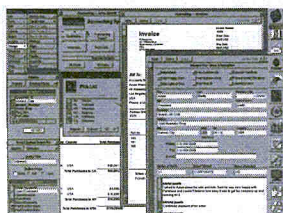


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When the consultant lab's team was eager to already working with NI applications, and we wanted NEXTSTEP, and Staringer says. The corporation reverse-engineered the Halerger, an expert in our brother Rainer, a UNIX v

Werner conceived of a stint at the University of Staringer explains that intelligence per se, but to explore an application in fact, he had nurtured an

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Risk Manager

ing, which is 95 percent corporate, rather than government, based.
"We work on research, not products – although we are sometimes
kind of in the middle. We are doing useful, practical things," he says.

When the consultants Creditanstalt had hired failed to deliver, the
lab's team was eager to take over the project: "At that time, we were
already working with NEXTSTEP, and we had experience with financial
applications, and we wanted to do exactly what they needed done. They
wanted NEXTSTEP, and they wanted people who knew this domain,"
Staringer says. The core group for RMS also included Otto Hainzl, who
reverse-engineered the code that had already been written; Andreas
Haleger, an expert in object-oriented design and GUIs; and Werner's
brother Rainer, a UNIX wizard.

Werner conceived of FML when he returned from a yearlong teaching
stint at the University of Auckland in 1987. Trained in expert systems,
Staringer explains that "what always interested me about AI was not
intelligence per se, but intelligent, 'smart' programs," so he set out to
explore an application domain rather than doing straight research. In
fact, he had nurtured an interest in smart programs after his first en-

counter with serious programming, when he tried to teach an Apple to
play Connect-5 using an early neural network.

Creating FML was a risky venture, but Staringer is no stranger to
leaps of faith. He ran his own comic-book exchange as a youngster and
later launched OKAY, a student newsmagazine that eventually grew to
a nationwide circulation of 35,000. These days, he and his wife, the for-
mer CEO of the newsmagazine, have acquired a passion for small-
plane flying.

Certainly, Staringer enjoys the acclaim in the business community
from his recent award, but academics remains his first love. "I have run
a company, and I know how much of a burden it can become. Maybe my
views will change over time, but right now I value my academic free-
dom," he says.

by ROHIT KHARE

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Lead Infiltrators

USER GROUP NEWS

USER GROUPS AROUND THE NATION have been scrambling to respond to Steve Jobs's challenge made at NeXTWORLD Expo to "infiltrate PC user groups." Two leading groups are KYnug in Kentucky and PhANG in Philadelphia.

Neil Greene, Kevin Solie, and Brian Bias founded KYnug three years ago at the University of Kentucky at Lexington. They've always been on the leading edge of NeXT users, with Greene and Solie even becoming VARs to sell NeXT and NEXTSTEP when there was no other outlet in central Kentucky. So even before Steve's call to arms, the group held a joint meeting for over 100 members of the Central Kentucky Computer Society, a major PC user group.

Their program was well received, especially by developers, with the message concentrating on the themes that will be used nationwide in these venues: Stress object-oriented programming; highlight

Windows compatibility; and make it clear that rather than trying to convert users from PCs, NeXT wants them to just add another piece of software to their machines and remain PC users.

For years, such a message would have had no luck in traditional DOS-bound PC groups. But with the switch to Microsoft Windows, users are already used to the concept of changing operating systems and moving to a new base of application software. With Microsoft trying to move people to Windows NT, there is a golden opportunity to get influential, early adopting user-group members to move to NEXTSTEP instead.

At press time, the Kentuckians had planned to give a full-day seminar in September at the University of Louisville South Central Bell Research Facility during a health-care symposium. This will be an opportunity to reach users from the entire spectrum of the

health-care community.

"We'll focus on free joint seminars with PC and mainframe corporate developers, because they are the most receptive to NeXT's offerings right now," Greene says.

KYnug is working with Peggy Thompson of the Puget Sound User Group in Seattle to help groups prepare for visits to PC users. The discussion is centering on pairing user groups with NEXTSTEP VARs for presentations to prospective customers.

Mike Matlock and Jon Hendry, with the support of Greg Anderson, their boss at Anderson Financial Systems, have been storming a variety of PC audiences with the NEXTSTEP message. These leaders of PhANG, the Philadelphia Area NEXTSTEP User Group, also led the infiltration groups by doing a demo for over 100 members of the Philadelphia Area Computer Society last year. They did a general NEXTSTEP-for-Intel demo on their own that drew 60 people, including 30 new prospects, in May. And they were scheduled to speak to 150 PC users at a July meeting of the South Jersey PC User Group.

Their message is much the same as KYnug's, stressing NEXTSTEP as both an alternative to, and an extension of, Windows. "We present to developers as much as we can. People using Windows at home don't really see the need for NEXTSTEP — yet. But they will. After all, NEXTSTEP runs Windows as well as NT will," said PhANG President Matlock.

The 30-member, two-year-old PhANG widely advertises its seminars and demos, dropping off fliers in computer shops and getting in the calendar listings of local computer-oriented newspapers.

In addition to barnstorming, PhANG provides members with meetings, a newsletter, and technical assistance. The newsletter is in color, thanks to help from a Canon subsidiary, DupliFax, which provides color copying. The group has fifteen people on its list of available experts. ♦

by DAN LAVIN

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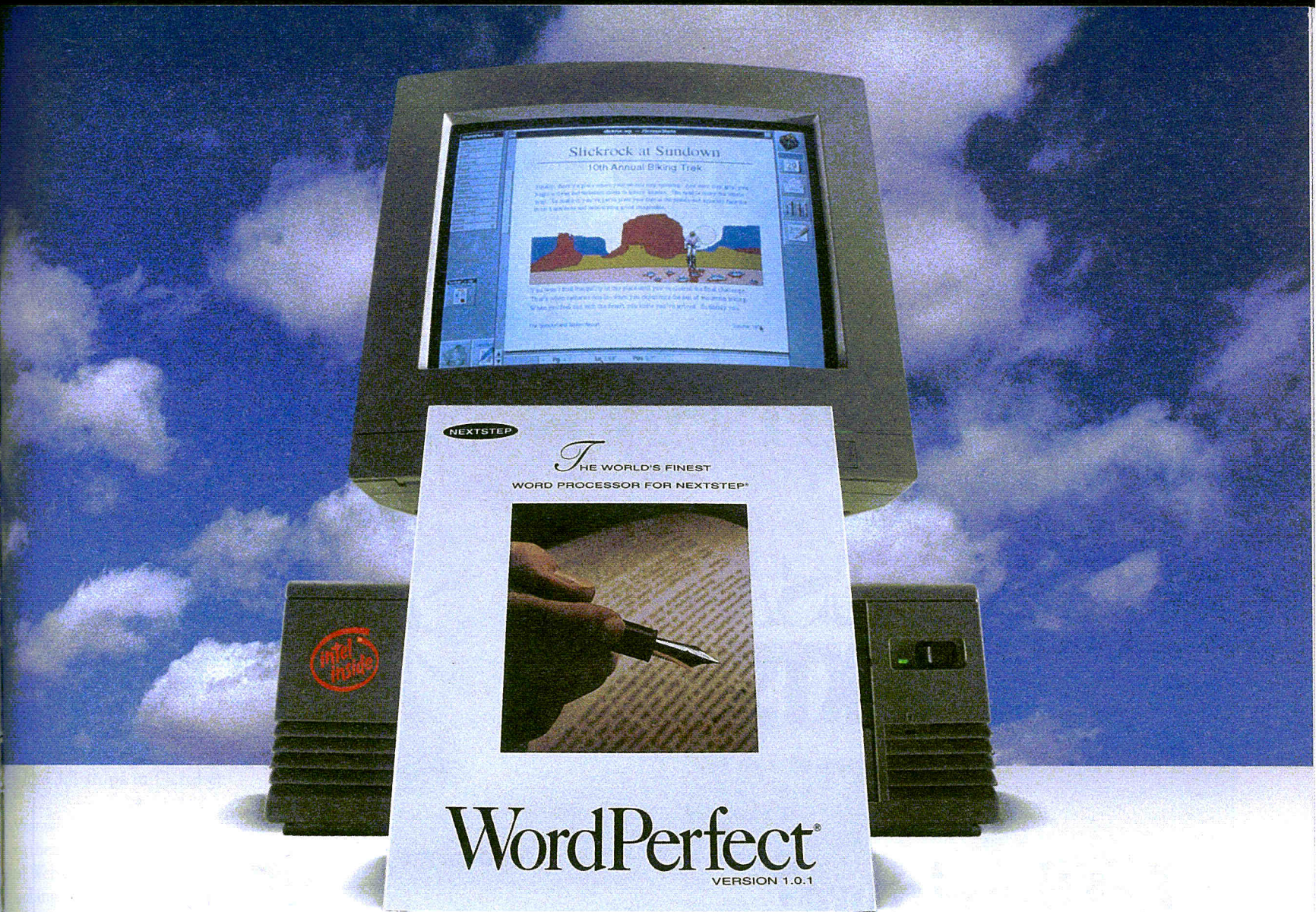
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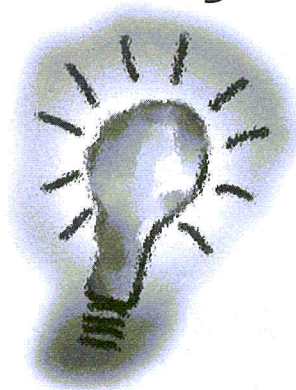
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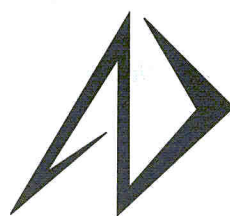
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Periphe Concer

ON THE]

Reports are coming in furious about experien NeXTSTEP 3.1 for Int all of them complaint drivers. Net readers wa why NeXT can't suppo 2000's IDE CD-ROM c the company all but gi with its high-end syste also want support for Blaster Pro, which is far mon than the ProAudio 16 that NEXTSTEP sup comes with its own low in CD-ROM interface. driver has also been a concern: Several potentia wrote that they tabled evaluate NEXTSTEP, discovered 3.1 can't do A posting directly from that a new serial driver tested and would likely before 3.2 ships in Oct

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Meanwhile, posters have ing themselves with bug tal Webster. (For a goo looking up the words "spaz.") These bugs ha ported to NeXT time s since Release 1.0, but f doesn't seem to be a hig

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Action in the programm seems to be equally div tween those who know I inside out and those wh starting out. Comp.sys grammer is also the pla job postings from Pen Systemhouse, both of w to be hiring a dozen nev mers every two or three

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Lastly, consultants who hour should check out a time-tracking and inv ating application that R has made available for a FTP from cs.orst.edu. which comes with sou track of how much time hacking and then prints your time. ♦

by SIMSON L. GAI

Circle 64 on reader service card

Peripheral Concerns

ON THE NET

Reports are coming in fast and furious about experiences with NeXTSTEP 3.1 for Intel – nearly all of them complaints about drivers. Net readers want to know why NeXT can't support Gateway 2000's IDE CD-ROM drive, which the company all but gives away with its high-end systems. They also want support for the Sound Blaster Pro, which is far more common than the ProAudio Spectrum 16 that NEXTSTEP supports and comes with its own low-cost built-in CD-ROM interface. The serial driver has also been a source of concern: Several potential customers wrote that they tabled plans to evaluate NEXTSTEP when they discovered 3.1 can't do serial I/O. A posting directly from NeXT said that a new serial driver was being tested and would likely be released before 3.2 ships in October.

★
Meanwhile, posters have been amusing themselves with bugs in Digital Webster. (For a good time, try looking up the words "neil" and "spaz.") These bugs have been reported to NeXT time and again since Release 1.0, but fixing them doesn't seem to be a high priority.

★
Action in the programmer's forum seems to be equally divided between those who know NEXTSTEP inside out and those who are just starting out. Comp.sys.next.programmer is also the place to catch job postings from Pencom and Systemhouse, both of whom seem to be hiring a dozen new programmers every two or three weeks.

★
Lastly, consultants who bill by the hour should check out Stopwatch, a time-tracking and invoice-generating application that Rich Plevin has made available for anonymous FTP from cs.orst.edu. The app, which comes with source, keeps track of how much time you spend hacking and then prints a bill for your time. ♦

by SIMSON L. GARFINKEL



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NEXTWORLD



NEWS
IN BRIEF

Wolfram Research is now shipping Mathematica 2.2.1 NEXSTEP for Intel. The numeric, symbolic, and graphical-computation software sells for \$1295. And in case you're worried, Wolfram Research is unaffiliated with Mathematica, the Florida-based multimedia software manufacturer that recently filed for bankruptcy. Wolfram Research: 217/390700.

Objective Technologies (OTI) began accepting orders for the beta release of Impress, its DB report writer, on September 1. For \$700, users will get a \$100 discount and free upgrade to the shipping product, available in Q1 1994. The beta was scheduled to be available September 30. OTI: 212/227-6767.

Stone Design in August renamed the upcoming revision of its Create drawing program and announced a maintenance upgrade to its 3D Reality modeling software. Create 2.0 includes new features originally scheduled for what the company had been calling Version 3.0. Version 1.4 of 3D Reality is a fat-binary upgrade and beta. Stone Design: 505/345-4800.

Black Market Technologies is shipping Connect It!, its \$149 e-mail setup and administration package designed to provide an automated interface for configuring modems and administration. [CONTINUED ON PAGE 2]

At deadline

RightBrain Software denied reports that it had ceased operations. President Glenn Reid acknowledged that he has sought a buyer for PasteUp but that no deal had been finalized. He added that RightBrain is still determining strategy for its ExactlyWord word processor. According to a NeXT spokeswoman, RightBrain's focus on the mainstream publishing market "doesn't match NeXT's market in financial services and telecommunications."

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New life for surplus printers

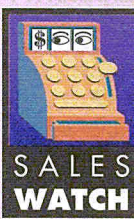
by SIMSON L. GARFINKEL

What do you do with a warehouse filled with 2600 laser printers that only work with NeXT's discontinued black workstations? Modify them to work with NEXTSTEP running on white hardware.

That's just what is promised by a deal announced in August by Kentfield, California-based GS Corporation (formerly Goldleaf Systems) and The Printer Works, a Hayward, California Canon OEM. The inventory of NeXT printers is the property of Canon, which also holds several thousand NeXT Color Printers.

Under the agreement, GS Corporation will develop a SCSI-interface card that will allow NeXT's proprietary printer to connect with any NEXTSTEP-based computer. Printing will be accomplished with GS's EXTRAPRINT driver, which uses NEXTSTEP's built-in Display PostScript interpreter to produce raster images for non-PostScript devices. Due to an existing licensing agreement between GS and [SEE PRINTERS, PAGE 22]

NEXTSTEP sales starting to build



by DAN LAVIN

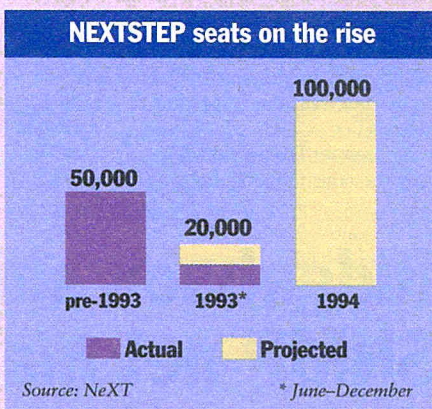
Redwood City - NEXTSTEP 3.1 sales in the first three months of shipment exceeded \$4 million, according to Warren Weiss, vice-president of sales and marketing, putting the product on target to meet NeXT's 1993 sales goals. While Weiss declined to cite unit sales, sources close to the company said that the new sales represented 9000 to 12,000 new NEXTSTEP seats.

Weiss said that the company expects sales of \$10 million in 1993 and \$50 million in 1994.

This would translate to 120,000 new seats, or a total installed base of about 170,000, by the end of next year. He did not provide a breakdown by developer, user, and eval-kit versions.

The company also disclosed that it has booked orders for 50,000 units for delivery over two years, up from the 40,000 it cited in May.

Developers appeared pleased with the level of sales. "It is certainly a step in the right direction," said one software developer, who



Adobe levies PS tax

by SIMSON L. GARFINKEL

Redwood City - A change in NeXT's Adobe PostScript license is causing headaches for developers who use NEXTSTEP's built-in Display PostScript interpreter to print on non-PostScript printers. Under NeXT's original Adobe

license, customers who purchased NeXT computers were automatically given licenses to use the PostScript interpreter to drive printers with a resolution of less than 900 dpi. Under NeXT's new Adobe license for Intel-based computers, users may not use their Display PostScript interpreter to print to a non-PostScript device unless they purchase a special "printing license."

With the new policy, developers will bundle the license with their drivers for non-PostScript printers. The cost of the license is based on the list price of the output device.

"NeXT isn't looking to make a lot of money selling these licenses," said Eric Chu, NEXTSTEP product manager. "We want to enable developers to easily bring more printers to NEXTSTEP."

One problem with bundling the license, said Wilfried Beeck, president of d'ART Computersysteme GmbH, which markets the printer-driver package Dots, is that it forces developers to sell two versions of their printer drivers - one for white hardware, one for black. The license may also eliminate the price [SEE POSTSCRIPT, PAGE 22]

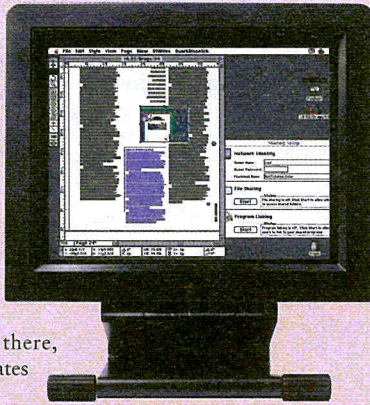
Black box or Mac box?

by LEE SHERMAN

Ebikon, Switzerland - The first legal Macintosh clone ever will be a NeXT computer.

Daydream, due this month at under \$1000 from Quix Computerware AG, uses an external "ROM Box" containing actual Macintosh LC ROMs attached to the NeXT hardware's DSP port. At boot time, the information contained in the ROMs is loaded in the computer's RAM. From there, the NeXT computer operates like a fast Macintosh.

Unlike an emulator, Daydream [SEE DAYDREAM, PAGE 22]



SoftPC gets speed boost

by SIMSON L. GARFINKEL

Mountain View, CA - Using technology that NeXT developed for NEXTIME, Insignia Solutions' SoftPC emulator will provide vastly improved screen performance when it is released in October.

According to Marc Munford, product manager for SoftPC, the new version includes NeXT's "interceptor" technology, which "pokes a hole through Display PostScript and lets you talk right to the frame buffer." With the change, SoftPC will run at close to native speed in the window-within-a-window mode, not just full-screen mode, Munford said.

The new version of SoftPC will also allow programs to access Novell NetWare servers through Novell NetWare IPX and Novell LAN Workspace DOS TCP/IP.

NeXT [SEE SOFTPC, PAGE 22]

New life for NeXT Europe

by DAN LAVIN

Ismaning, Germany – The dream of a politically unified Europe may be fading, but by all indications NeXT is starting to flourish on the continent: Sales are ahead of plan and will contribute at least 25 percent of NeXT's worldwide sales; Computer 2000, the largest software distributor in Europe, has become a distributor of NEXTSTEP; and Sorbus, a Bell Atlantic affiliate, has started service operations throughout the region.

The positive signs are remarkable because NeXT's restructuring hit the European market even

harder than the United States' and was preceded by serious missteps under former Vice President Theo Wegbrans. The European market is famously conservative and slow to grant second chances, but the NeXT Europe team of 11 employees (down from a high of 90 two years ago) working through indirect channels seems to have gotten that second chance.

According to the sales plan, NeXT Europe is due to sell \$2.5 million in product from Expo through the end of 1993 and \$12.5 million in calendar year 1994. "We're very confident of achieving our 1993 goals based on our

experience selling product now and business we see coming in the next few months," said Bernhard Woebker, NeXT's vice-president for Europe.

NeXT in Europe only sells indirectly through the distributors to dealers. With the addition of Munich, Germany-based Computer 2000, there are now over 15 distributors on the continent and NeXT is now selling in more countries than at its peak two years ago. The huge distributor, often termed "the Ingram of Europe" due to its size, has only signed an agreement to be the second distributor in Germany, along with d'ART Computersysteme GmbH, but discussions for a wider agreement are actively proceeding, according to Woebker. A deal with Computer 2000 is significant both in terms of market perception and allowing customers to order NEXTSTEP through almost any PC reseller and dealer in Germany, and later Europe, Woebker added.

Sorbus is the European arm of the Bell Atlantic network that is 49 percent owned by Bell Atlantic and 51 percent owned by ICI of Great Britain. It will provide full warranty support and sell service contracts on black hardware throughout the continent.

In related news, NeXT Europe has hired Dieter Hesse as marketing director for the region. He comes from working with companies such as Microsoft and Markt & Technik, where he supported indirect software sales.

New dev registration, consultant programs

by DAN LAVIN

Redwood City – If you are a NEXTSTEP developer, you will have to reregister with NeXT to qualify for a new, expanded slate of support services. And if you are a NEXTSTEP consultant, you could become a member of NeXT's new support group.

"We want to increase services to developers who are making a substantial commitment to today's NEXTSTEP. We could only do that by paring companies no longer involved in today's market from an outdated list of developers that was started over six years ago," said Julie Saffren, NeXT's manager of developer relations.

Companies and consultants will be required to pay \$250 to join the new programs. Companies shipping a product will gain automatic entry to the program upon filing a basic application. Developers without a shipping product, and consultants, must pay \$250 and file details about their business.

The new registered-consultant program highlights the importance of aftermarket professional services in the NEXTSTEP environment. "NeXT realizes that customers rely on a strong pool of consultants and other partners to maximize their productivity gain with NEXTSTEP, so we opened a new pipeline to deliver technical information to this community," said Saffren. NeXT also plans a new consultants directory.

Benefits of the program include discounts on NEXTSTEP software, support, and education products, all of which must be purchased separately; subscriptions to three technical-support products at no additional cost; and direct-marketing and comarketing opportunities to reach the NEXTSTEP customer base for an additional fee.

"We think it's appropriate to focus on producing apps that ship and marketing programs that have beneficial impact, like the third-party CD-ROM," said Dan Torrici, director of sales and marketing for Pinnacle Research.

NS mingles in mergers

by ELIOT BERGSON

In moves that position NEXTSTEP as a Trojan horse in the fortress of corporate America, two important NEXTSTEP sites have merged with large firms in two markets.

At press time, Seattle-based McCaw Cellular, which has been developing a NEXTSTEP-based customer-service app for the past nine months, was bought by telecom giant AT&T for a reported \$12.6 billion. The deal, expected to gain government approval within the next year, would give AT&T a cellular-service arm to complement its industry-leading wireless-network infrastructure

and wired long-distance system.

"The consumer wins and technology moves forward quicker than if we stayed on separate fronts," a McCaw spokesman said.

And in July, Charlotte, North Carolina-based NationsBanc, the sixth-largest U.S. bank, purchased Chicago Research and Trading (CRT). The merger will take CRT's risk-management expertise, some of which has been developed during a NEXTSTEP pilot project, and make it available to NationsBanc's corporate clientele, according to John Keazirian, CRT's executive vice-president for information technology.

Next-day service



You've already got a PC that meets the specifications for NEXTSTEP for Intel? If so, you can make a call to NeXT-Connection

and be running the software the next day. NeXTConnection can supply you with either the user or developer versions of NEXTSTEP at very competitive prices.

But you'll be running little else. NeXTConnection's third-party offerings for Intel are limited to a mere half-dozen applications. While these include such excellent solutions as Athena Design's Mesa spreadsheet, WordPerfect's WordPerfect word processor, and Metrosoft's MetroTools utility package, there isn't much to attract a new user, compared to the thousands of programs available for other operating systems.

The good news is that the number of third-party offerings is expected to quadruple by the end of the year.

NeXTConnection knows PCs (not too surprising, since the company is a division of the much larger PC Connection) and the salesperson was very helpful in explaining configurations, bus designs, and video drivers.

The biggest current problem with NeXTConnection is finding out what products it offers. The company ceased active advertising in June and has announced no new marketing programs. The telephone salesperson said that the company remains uncertain about how it will advertise its product offerings.

NeXTConnection can be contacted at 800/800-6398.

Each month, the Channel Sleuth will look at a different aspect of NEXTSTEP distribution.

ISV drought ending?

by SIMSON L. GARFINKEL

Many developers are relying on revenues from consulting services to tide them over until new NEXTSTEP sales create demand for shrinkwrapped software.

"If we didn't have the consulting, we'd be in trouble," said Alex Cone, president of Objective Technologies, a New York-based consulting firm that ventured into the shrinkwrapped market two years ago. "I know of a number of people doing consulting who are normally considered to be [developers of] shrinkwrapped software."

One example is Stone Design,

which recently began offering consulting services in database design and graphic arts to bring in extra cash. One of the largest NEXTSTEP developers, Lighthouse Design, was "deriving revenue from non-NEXTSTEP sources" during NeXT's transition, according to company President Jonathan Schwartz.

The good news, said Schwartz, is that Lighthouse has "returned to profitability with our NEXTSTEP software alone." Reported NEXTSTEP sales of approximately 10,000 units from June through August may revitalize the shrinkwrapped-software market, Schwartz said.

Dave Peter returns to HSD

Sunnyvale, CA – Just four months after stepping down as president of HSD US, Dave Peter is back at the helm. "I've been impressed with NeXT's recent headway in the market," Peter said.

He added that he has not yet assessed HSD's new product strategy, in which the company dropped its line of scanner hardware, but said the company might acquire

additional software products to complement its PowerScan and OCR Servant offerings.

Peter said that executives at HSD's German parent company convinced him to return. Dave Marquez, who served as president since May, has left the company. Peter will work part time from offices in San Diego and HSD's Sunnyvale headquarters.

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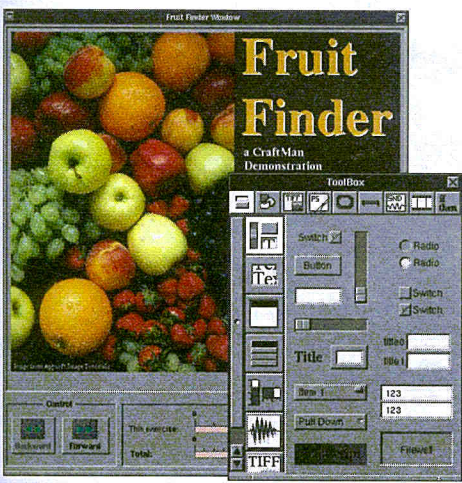
CraftMan™

The winner of NeXTWORLD Magazine's "Best of Breed Award" in the category of "Development & Authoring."

CraftMan is a HyperCard™-like multi-purpose multimedia programming tool with a powerful object oriented scripting language called CraftScript*.

CraftMan is designed for rapid prototyping, computer-based training applications, multimedia presentations and hypertext documents.

Retail Price: \$995



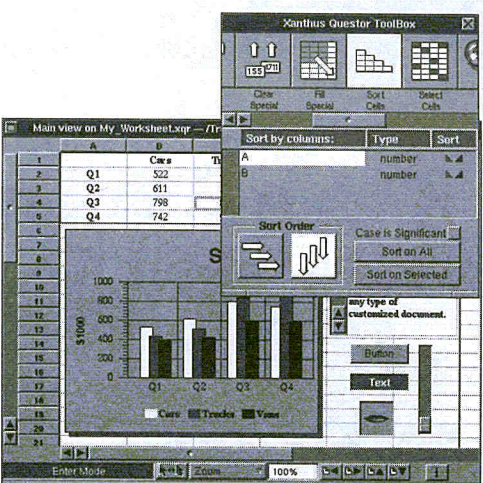
Questor™

Questor is a new spreadsheet application that includes a powerful scripting language called QScript*, seamless SQL database access and a double-directed API for external application control.

On the worksheet you can put graphs, graphics, images, sound annotations, buttons and sliders.

Questor fully supports object linking, multi-level undo and the 1-2-3®, and Excel®, file-formats.

Retail price: \$595



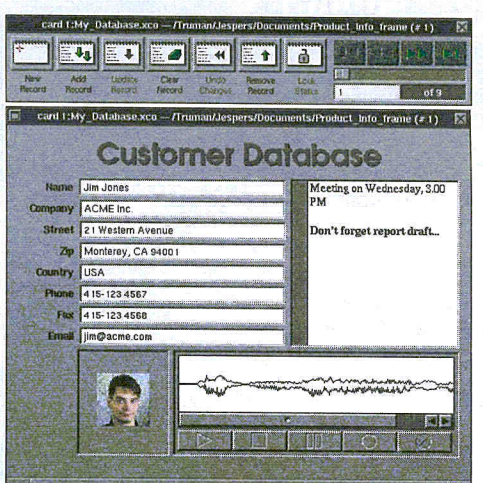
Celebro™

Celebro is a new multi-user, flat-file database with support for multimedia data types like image and sound, a rich scripting language called CScript* and controller objects like buttons.

In Celebro, you can have multiple views of the same data, including card, page, labels, report and table. All views have full WYSIWYG layout capabilities.

Celebro fully supports object linking and multi-level undo.

Retail price: \$695



*CraftScript, QScript and CScript are all versions of Xanthus Common Language (XCL™), a uniform scripting language used in all Xanthus products with scripting capabilities. XCL gives you a uniform scripting syntax and a common set of basic functions. XCL allows you to write external functions in XCL or in Objective-C that can be used by any XCL-based application from Xanthus.

HyperCard is a trademark of Apple Computer. 1-2-3 is a registered trademark of Lotus Development Corp. Excel is a registered trademark of Microsoft Corp.



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C o n t i n u e d

NEXTSTEP e-mail and UUCP connections. Black Market Technologies: 718/522-5090.

Yrrid is on tap to ship its Cables terminal-emulation and file-transfer package this quarter. The package, which will sell for between \$189 and \$399, emulates a variety of popular mini-computers and supports Kermit, X/Y/ZModem, and Text protocols. Yrrid: 919/986-7858.

Sunrise Software has suspended operations and ceased development of its DB2 adapter for DBKit after being unable to secure additional funding, according to the company. Sunrise is looking to sell DB2 and Simpla, its flat-file database, to another developer.

Kathy Geisler waves the NEXTSTEP baton again with *21st Century Messiah*, an update of Handel's opus that will be distributed in October to over 500 stores in North America. Well Tempered Productions: 510/526-5608; kathy@jaffe.com.

Bacchus is shipping fat-binary versions of both its \$99 ImageAgent and \$299 PixelMagician image-conversion products. ImageAgent allows users to drag and drop non-native files into NEXTSTEP applications, while PixelMagician offers more functionality and advanced features and includes ImageAgent. Bacchus: 310/820-9145.

Looking Glass Design is making available free, prerelease versions of its LGDCommunicationKit, a library of serial-port-communication objects for NEXTSTEP apps that will sell for \$99 when released. The package sports objects for establishing serial-device connections and extending functionality through support of event-driven serial input. Looking Glass Design: 604/451-7461.

NeXTWORLD Extra is a regular section of *NeXTWORLD* magazine. It is published monthly by Integrated Media, a subsidiary of IDG Communications, 501 Second St., San Francisco, CA 94107. Lt. Sullivan's column and articles about unannounced NeXT products are reported and written by contributors without guidance from the *NeXTWORLD* staff.

Editor: Dan Ruby; Managing Editor: Eliot Bergson; News Editor: Dan Lavin; Technical Editor: Simson L. Garfinkel; Layout Chief: Beth Kamoroff.

Daydream

[FROM PAGE 17]

allows black hardware to run the latest Mac system software and popular third-party applications at speeds comparable to a Mac Quadra 900. According to the company, even shareware extensions and utilities run without fail.

Compatibility is achieved much the same way as Apple would when updating its ROMs to support a new Mac, said Andy Grawehr of Quix. Hardware drivers are replaced in memory when the software is loaded into RAM.

By licensing Macintosh LC ROMs directly from Apple, Quix may have avoided the legal difficulties faced by similar products. The software also ships with a minimal version of System 7.1, apparently with Apple's blessing.

Eric Sirkin, manager of OEM licensing at Apple Computer, refused to comment on any discussions the company might be having with Quix or any other company wishing to license Macintosh ROMs. To date, only two companies — Radius and Honeywell — are official licensees.

Current limitations to Daydream include a lack of support for NeXT's Laser Printer, and the inability to read 800KB Macintosh disks or attach a modem. ♦

Printers

[FROM PAGE 17]

Adobe, use of the eXTRAPRINT driver on white hardware poses no legal problem, said GS vice-president John Fox (see "Adobe levies PS tax").

The interface card will be bundled with the existing NeXT printers and sold to Intel users at "competitive prices," said Stephen Roberts, president of The Printer Works. The card may also be mar-

keted as an upgrade option for current NeXT-printer owners.

Once the card is finished, Roberts hopes to use the technology for "a whole line of printers based on current-model Canon engines." Roberts is considering offering a 17-ppm (page-per-minute) printer based on the Canon NX engine; a large-format 600-dpi printer based on the BX engine; and an eight-ppm, 600-dpi letter-sized printer based on

the EX engine.

The existing stock of 2600 NeXT printers may be sold by either Bell Atlantic or The Printer Works, according to Charlie Houston, a strategic account manager for Bell Atlantic. Expected to cost between \$1000 and \$1200, Bell Atlantic may modify the printers to boost their resolution from 400 by 400 to 400 by 800 or even 800 by 800 dpi. ♦

SoftPC

[FROM PAGE 17]

planned to begin distributing beta versions of SoftPC to customers in mid-September and include the final version on the NEXTSTEP 3.2 CD-ROM. The program will run in demo mode for 30 days, after which users will be able to purchase a \$249 key from Insignia to continue using the product.

The new product contains elements of a future Windows port

for UNIX, tentatively called SoftWindows, that Insignia is developing under license from Microsoft. Contrary to reports published elsewhere, however, the forthcoming NEXTSTEP product will not be called SoftWindows. The company said that it expects to ship SoftWindows for various UNIX platforms in the first half of 1994.

Insignia Solutions can be reached at 415/694-7600. ♦

PostScript

[FROM PAGE 17]

advantage of using a non-PostScript printer, Beeck said.

"It's true this is not ideal," said Chu. "But purchasers of black hardware already paid for the ability to print up to 900 dpi, and they shouldn't pay twice." ♦

Sales

[FROM PAGE 17]

paring sales results to its internal plan and has recently revealed only orders, not shipments. The new sales-management team, however, is stressing manageable, achievable goals that are in keeping with NeXT's new size and scope.

In a related move, Ingram Micro, NeXT's master distributor in fulfilling demand from VARs and resellers, announced that NEXTSTEP sales were strong, though sources placed the figure in the range of hundreds of units.

"NEXTSTEP has been a very successful new product launch," said Amy Hoffman, senior director of Ingram's technical products division. "Momentum is building and we expect NEXTSTEP sales to continue to rise." ♦

Is it soup yet? Lt. Sullivan takes a sip

The intrigue over object alliances is heating up with Apple's apparent disenchantment over its Taligent venture, which has been burning \$4.4 million per month with no revenues in sight. With Apple set to pull the plug, the boys from Big Pink have been looking for new investment from all the usual suspects, including SunSoft and Hewlett-Packard. Meanwhile, NeXT is looking better all the time.

Maybe that's why Apple boss Mike Spindler dropped by Chesapeake Drive for a recent chat with Steve Jobs. Apple knows that NeXT has had NEXTSTEP running on PowerPC-based systems in its labs. It could be a ready-made answer to Microsoft's Cairo project. Evidently, the meeting ended at the "let's keep talking" stage, while Spindler deals with more pressing issues.

And that's just one intriguing iron in the fire. Sources say that HP is interested in raising the stakes beyond its Object•Enterprise deal with NeXT. Steve would be thrilled to get an equity investment out of the deal, while HP more likely wants to purchase NeXT outright.

Any such deal would help NeXT bring its debt into line, which includes the \$65 million it ran up on that pesky Canon Express Card (don't leave Apple without it). NeXT and Canon are rumored to have hammered out a final agreement sharing hardware assets, intellectual property, and other goodies. Among the assets headed to Canon is the rights to NRW. Canon also seems to have snapped up some engineers to work on a product based on NeXT's RISC workstation design — though there are no guarantees it will run NEXTSTEP, of course.

On the third-party front, RightBrain Software canceled an ExactlyWrite demonstration at a recent BANG meeting with only 24-hours notice. With little else to do, the crowd repaired to Compadre's, thinking they might run into RightBrain chief Glenn Reid at his usual watering hole. Sure enough, Glenn showed up a short time later with this cryptic explanation: Since traditional models for software are breaking down in the NEXTSTEP marketplace, RightBrain will bring its word-processing technology to market in a more modern and interesting way than previously planned. Expect an announcement "in a month or so," he said.

Was Millennium's Newsgrazer Pro announcement triggered by fears of NeXT throwing its NewsGazer source code over the proverbial transom? News-

Grazer was written by Millennium's Jayson Adams in a former lifetime, as a NeXT employee. When he learned that NeXT was considering putting the source code on the net, Millennium accelerated its plans for an all-new Pro version and convinced NeXT to distribute a multiple-architecture version of the original without sources.

NeXT has been inundated with user requests for an Intel version of FrameMaker. That's well and good, but to really have some impact, it would be more useful for those who have an opinion on the subject to go to the source.

Tell Frame Technology what you think at 403/433-3311.

Lt. Sullivan



Now here's a buy that might get any company to port to NEXTSTEP: A government agency recently put out a bid for 20,768 copies of a word processor, 8787 copies of a desktop-publishing package, 7142 copies of a spreadsheet, and much more, including printers, COBOL compilers, and calendaring software. Systems integrators are talking to various software vendors now to put together their quotes. A final decision is not expected until the spring of 1994.

On the down side, Calgary's Department of Motor Vehicles just went down from a projected 600-seat NEXTSTEP installation to a modest 80-seat plan. The agency is due to be privatized, and the private-sector network will now be based on DOS/Windows.

NeXT is making progress on the object-oriented file system that it has hinted may replace the UNIX file system in NEXTSTEP 4.0. The project is far enough along to have a code

name: Soup. The file system would contain programs, files, images, as well as — well — objects. This could be a really big step forward in the next version of the operating system but also carries some backward-compatibility issues that NeXT is considering carefully.

Little things like new technology pale in comparison to some of the other changes NeXT has on deck. In the future, Sullivan hears, the name NeXT will be replaced by NEXT. Another score for the Capital Es.

Soups of all kinds are best sipped from a Lt. Sullivan mug. Get yours in exchange for bits of inside information. Leave Sullivan a voice-mail message at 415/978-3374 or e-mail him at sullivan@nextworld.com. If you are nervous about privacy, e-mail ahead first for Lt. Sullivan's RSA public key.

Alamco Systems International Ltd. sells an array of powerful NEXTSTEP applications for both Intel and NeXT hardware platforms. *solidThinking* COELER—the 1993 NeXTWORLD's "Best of Breed"—is a 3D modeling package with powerful features such as sketching, morphing, curve lofting, visible 3D text, shadow generation, hidden maps, and unlimited resolution. *ZZ Volume* is an architectural design tool to create 3-dimensional spaces and to visually tour the spaces created. It is designed for architects, interior designers and anyone who needs to visualize space. *ZZ Volume* is a 1993 NeXTWORLD "Best of Breed Nominee."

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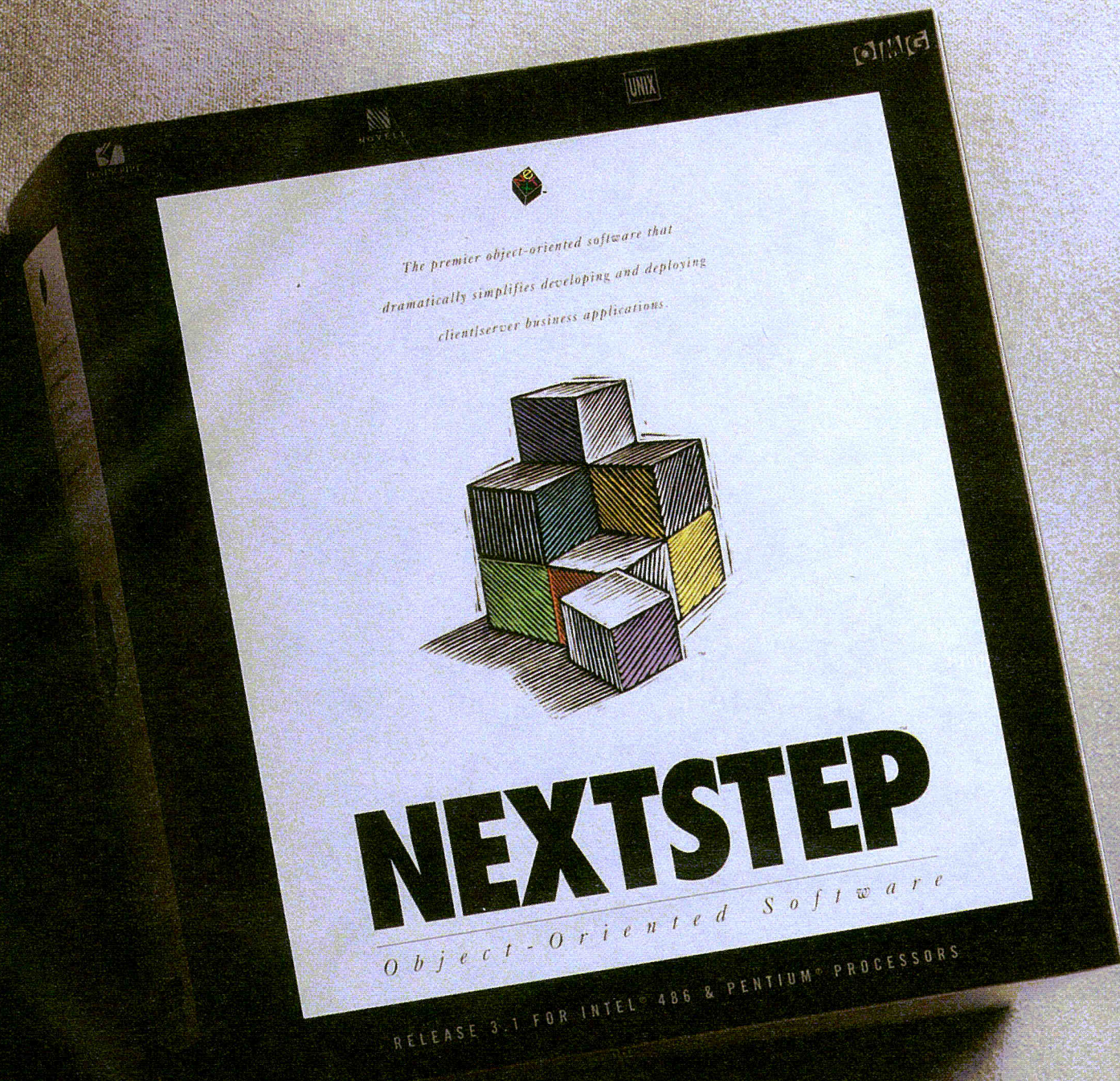
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Eye on the Prize

**Hewlett-Packard
and NeXT target
financial-services
industry with
Object•Enterprise
joint venture**

BY DAN RUBY

26 NEXTWORLD OCTOBER 1993

It's a simple equation with a big payoff: NeXT's object technology plus Hewlett-Packard's enterprise systems equals new business and big profits for financial-services firms.

Object•Enterprise, the joint venture announced in May, combines the advantages of object-oriented development and client-server architecture to create and deploy new financial applications and systems. These will be applied first in live trading systems but will propagate out to customer-service applications. Long term, Object•Enterprise systems will be used to fundamentally restructure information systems — all the way, as HP executives say, from the desktop to the data center.

"The benefits of object orientation have been lauded in the industry but never really deployed on enterprisewide business applications," says Ruann Ernst, HP's director of financial services marketing.

So far, a small handful of early NEXTSTEP adopters have demonstrated substantial results using NeXT's tools to create custom trading instruments. With Object•Enterprise, they will be able to deploy these apps in global information systems based on HP workstations, servers, and mainframe-class systems.

That's the Object•Enterprise equation on paper. How it plays in the real world, where HP fights it out against companies like DEC, IBM, and Sun, and NeXT is in a David-and-Goliath battle with Microsoft, is very much an unknown.

Risk and reward

Between deregulation and globalization, financial markets have changed radically during the past decade, as the distinction between banks, brokerages, and money managers has blurred and national borders have become irrelevant. Every financial-services firm is scrambling to find opportunities.

The goal: get more information, get it faster, and analyze it more completely than your competition, so you can make that calculated decision to buy or sell before anybody else.

"Maybe there's a weird bubble in an equation between Swiss warrants and Japanese bonds. If you find it, you win," says Jim McCrory, NeXT's point man on Object•Enterprise. "Trading is a zero-sum game: Somebody wins and somebody loses."

Traders are in the business of risk — currency risk, interest-rate risk, political risk. In July, when the European Community let member currencies swing to market value, billions of dollars changed hands in a day. With options on securities, currency, mortgages, and every kind of commodity, institutions have the opportunity to make vast profits for themselves and their customers, but they also need to manage their risk.

To deal with the complexities, securities firms have led the commercial world in the adoption of commercial workstations and client-server systems. Now these same firms have an opportunity to take the lead in object technology.

"Objects give us a new way to look at our business. Our ability to manage risk is much more granular than it was three to five years ago," says Dwight Koop, director of information technology at Swiss Bank Cor-

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HP 9000
S/800 Server

Model Object•Enterprise in the front office, traders and real-time data, analytical tools, office servers handle number age to the back office, where processing and accounting operations extend tools beyond the screen. Screen shows typical brief; trading app showing with multiple equity quotes major currencies; headline chart; and graphical representation of data.

ILLUSTRATION BY GORDON STUDER

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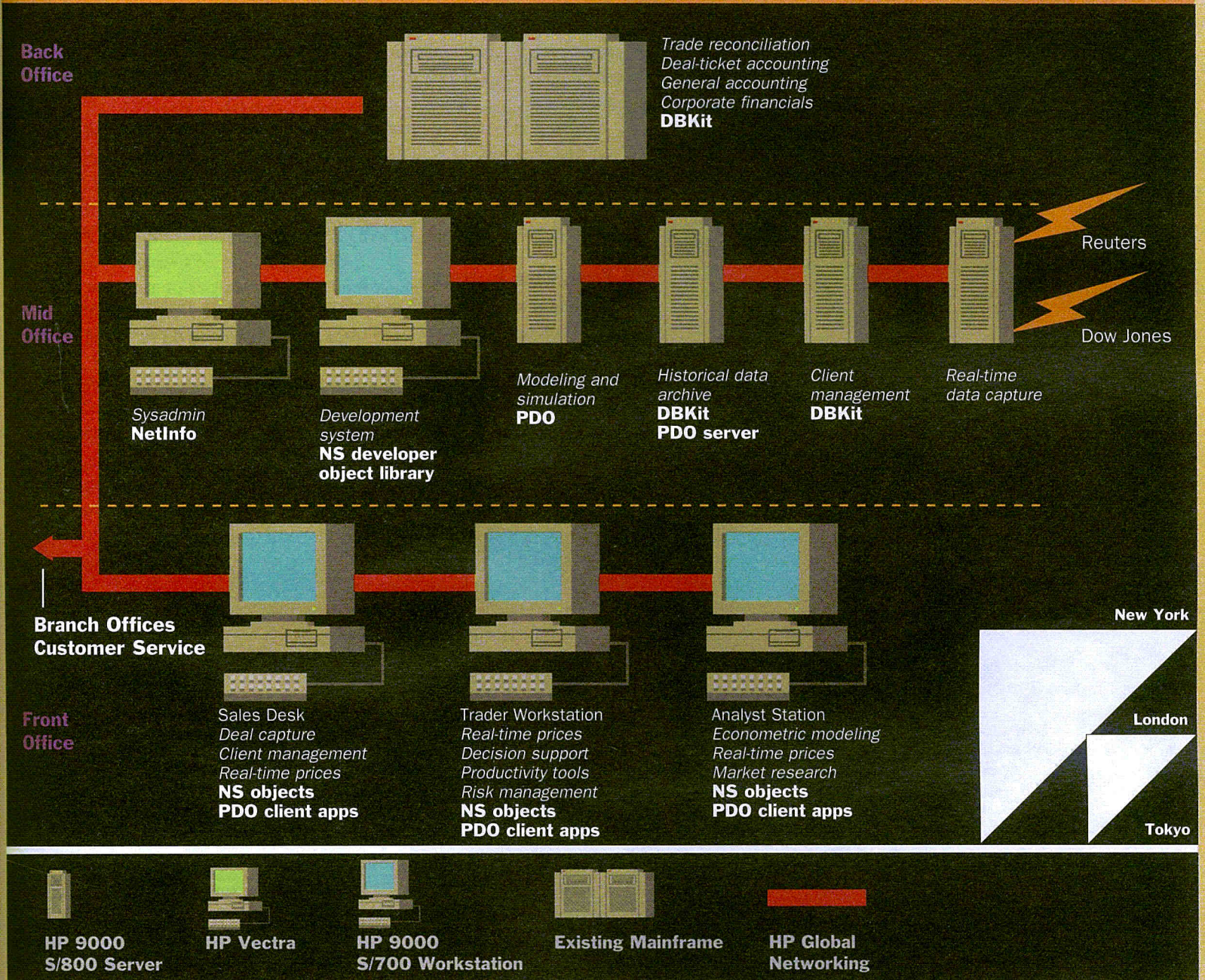
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FEATURE

NEXTSTEP IN THE SECURITIES-INDUSTRY ENTERPRISE



Model Object•Enterprise installation unifies all functions of a trading operation. In the front office, traders and analysts use NEXTSTEP on workstations to integrate real-time data, analytical tools, corporate data, and live ticketing software. Midoffice servers handle number crunching and database management and provide linkage to the back office, where mainframes or equivalents house production order-processing and accounting systems. Connections to retail and customer-service operations extend tools beyond the trading room.

Screen shows typical trader environment, including: research market-analysis brief; trading app showing open positions and audit trail; digital price-feed display with multiple equity quotes; foreign-exchange page displaying bids and offers on major currencies; headline service to monitor breaking news; stock-option volatility chart; and graphical representation of profitability of current positions.

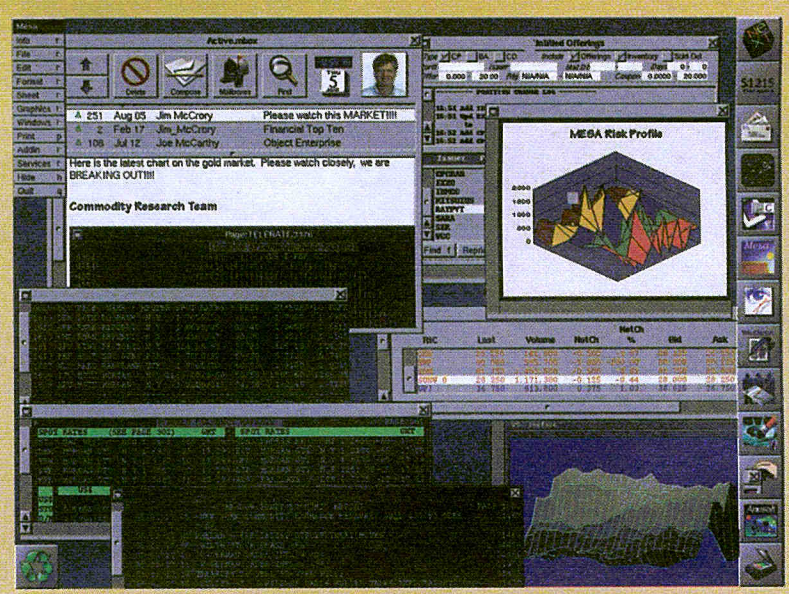


ILLUSTRATION BY GORDON STUDER

NeXT's Portable Distributed Object System

When NeXT introduced its distributed-objects facility with NEXTSTEP 3.0, many developers hailed it as a breakthrough. Before 3.0, building an application program that operated over the network was a complicated proposition: programmers had to build by hand a set of remote procedure calls (RPCs) for sending messages and exchanging information between the client program and the server. With 3.0's Distributed Objects, NeXT took all of that complexity and hid it behind a set of powerful yet simple-to-use Objective-C objects.

All NEXTSTEP programs are built out of objects. Using 3.0's new features, developers could take an object or a group of objects out of an application program, compile them separately, and place them on another computer. The only change necessary to the application program was adding a single line of code telling the program on which computer the object now resided and the name with which it was being offered to the network.

One of the simple uses that programmers found for distributed objects was peer-to-peer communication between different applications running on a single workstation, says Rick Jackson, NeXT's director of developer environment product marketing. Using the distributed objects, a program can easily update information in another program's windows as easily as in its own.

In large, enterprisewide applications, Distributed Objects can play a far more important role. "You can break your application up into task-oriented processes," explains Terry Lindsey, vice-president of technology development at WilTel. For example, says Lindsey, a large application program might have a module that requires a large amount of computer power, memory, or access to a specialized database to perform a series of sophisticated calculations. Using distributed objects, that module can be taken out of the main application – which runs on relatively low-cost workstations – and placed on a powerful, centralized server.

When customers started breaking apart their programs and putting different objects on different systems, another advantage of distributed objects became apparent: the same object could be used simultaneously by different applications at the same time. This does more than save development time, explains Jackson: it dramatically saves the time necessary to redeploy applications when the object is changed or improved.

Take the example of Swiss Bank, where programmers have developed a series of objects that encapsulate different financial models. The objects are kept in a central object repository used by a variety of different applications running on the firm's trader workstations. Whenever a programmer improves the model object, every application instantly makes use of the new version.

But for all of its power, NeXT's Distributed Objects had a major shortcoming: NEXTSTEP objects could communicate only with objects running on other NEXTSTEP computers. NeXT's Portable Distributed Object (PDO) system frees NeXT's Distributed Objects system from NEXTSTEP.

The PDO system will consist of two parts: a development environment and a runtime system. The development environment is what programmers will use to create distributed object-based applications. It includes a version of the GNU Objective-C compiler that will produce object code that runs on the HP server, a version of the GDB debugger, and all of the *include* files and libraries for NEXTSTEP's foundation classes – the classes, such as Object, List and, HashTable, which are not involved in displaying graphics on the NEXTSTEP screen.

In addition, there is a portable BuildServer that runs on top of PDO, and talks to ProjectBuilder on the NEXTSTEP client side. This will enable developers to use ProjectBuilder to build their PDO objects on the target server.

For the PDO runtime environment, NeXT is developing a special program that will emulate Mach interprocess communication with the sockets that are available under System V UNIX. This program will also include a portable nameserver that will respond to requests from over the network for named objects and find them in the HP-UX environment.

Using PDO, sending a message to an object that resides on an HP 9000-series server running HP-UX will be no different than sending a message to an object on a computer running NEXTSTEP – except the response will come back much faster. That's good news for customers who want to use distributed objects for solving problems that would even tax Pentium-based systems.

NeXT will develop and support PDO for HP's PA-RISC, to be delivered in Q4 '93, and Sun's SPARC-based systems in 1994. Data General is licensing PDO source code and will port, market, and support a version for their Aviion servers.

But it won't stop there. "PDO is designed to be portable," says Jackson, who adds that NeXT is having discussions with most major UNIX vendors – including IBM, Digital, and NCR – to put a version of PDO onto their system.

by SIMSON L. GARFINKEL

poration, one of NeXT's largest customers. "When you decompose any problem, the objects that you ought to be carrying around and dealing with aren't necessarily transactional in nature."

To take advantage of the changing market, trading firms need an environment for rapid application development. A financial product may last days or weeks. The first to market with a new trading instrument reaps the reward.

Firms also need to integrate multiple sources of information together on one desktop, as well as distribute the information out to systems throughout the enterprise. The focus is no longer exclusively on the trader's desktop, but the need to integrate it with mainstream production systems and extend it to branch-office customer-service applications.

From front to back

A modern trader's workstation provides systems for real-time feeds, analytical modeling, historical data access, graphic displays, and links to the enterprise – all unified on a single desktop.

But it was not always so integrated. A decade ago, traders worked with video-based data feeds from companies such as Quotron or Telerate. Each system had a proprietary terminal that could display only predefined screens.

Later, information providers digitized their feeds so customers could pipe data directly into their financial models. Now firms could analyze the data and crunch it with powerful analytical tools that ran scenarios and calculated probabilities. Early analysis workstations were closed, but the trend in recent years has been to offer customers platforms that they can use to build their own, customized systems.

While real-time feeds and analysis tools are fairly commonplace, firms still lack integration with their own databases of historical and technical data and to mainframe-based production systems for order processing and accounting.

These back-office systems are typically batch-oriented processes that involve delays of a day or more before reflecting current transactions. "Portfolio managers and the research group make the decision to buy or sell, traders execute it, and in the back office, people key it in. Right now, the method of communicating between those groups is purely paper," laments Duncan Wilcox, director of investment technology for Nicholas-Applegate, a San Diego-based money-management firm. "If we electronify the decision to buy or sell, and electronify the execution of it, then it is rather simple to automate the operational side."

To make up the discrepancy between the real-time needs of the front office – the traders and analysts – and the batch mode of the back office, a new function called the midoffice has emerged to handle the infrastructure software that serves as the link between the trade and the audit trail.

Peripheral to the trading function, financial firms also want to provide many of the same information systems elsewhere in the enterprise, such as retail brokerage and customer service.

With Object-Enterprise's development system and client-server deployment architecture, firms can seamlessly integrate the trading process from front to back office. Ultimately, they can re-engineer their entire business around objects.

Special relationship

The benefits of object technology are no revelation for HP. The company was one of the early advocates of object activity at the enterprise level, helping to define distributed computing standards such as DCE and DME (see "Object Glossary"). Ernst was personally involved in the formation of the Object Management Group, which specified the CORBA standard for object intermessaging.

One piece that HP entered operating system class object-development Ernst.

Together, the company to market and sell the corporate name, NeXT hoped in the market.

To be precise, Object-Enterprise exclusive to any hardware. Data General, NCR, and the umbrella, but the HP man, NeXT's director of

"Our goal is not to ship with HP," he says.

Nor is NEXTSTEP based HP-UX will continue to other client operating Macintosh. HP is also a Precision Architecture (PA-RISC) Architecture (PA-RISC).

"We believe in choosing HP's preferred object

HP's PA-RISC Servers

Hewlett-Packard's family of servers, and mainframe-class the desktop to the data center.

Originally introduced in the superscalar 7100, which Systems built with it are the thing to the company, from quad-processor superservers.

The wide range of up to performance and configuration, distributed, client-server network scale it as its usage grows.

The native operating system 1.2, X11 Release 5, and more, NeXT's Portable Distributed ing Series 800 servers to a NEXTSTEP as a whole will be HP-UX as the desktop operating

HP Apollo 9000 Series 700 Workstations	
	SPECINT92

Model 715	24
Model 725	36
Model 735	80
Model 755	80

HP 9000 Series 800 Business Servers	
F-Class	22-38
G-Class	38-82
H-Class	34-82
I-Class	38-82

HP 9000 Corporate Business Servers	
Model 890/1	1215
Model 890/2	2253
Model 890/3	3306
Model 890/4	4301

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One piece that HP did not have, however, was a standout object-oriented operating system on the desktop. "That's what NeXT has - a world-class object-development environment that is deliverable today," says Ernst.

Together, the companies wanted a packaged solution that made it easy to market and sell the combined technologies. By using the Object•Enterprise name, NeXT hopes to develop a brand identity that is recognizable in the market.

To be precise, Object•Enterprise is a NeXT campaign that is not exclusive to any hardware vendor. Other server manufacturers such as Data General, NCR, and Digital Equipment may also be brought under the umbrella, but the HP relationship is special, according to Ron Weissman, NeXT's director of corporate marketing.

"Our goal is not to exclude anybody, but to have a fabulous relationship with HP," he says.

Nor is NEXTSTEP exclusive in HP's view. The company's own Motif-based HP-UX will continue to be available at the desktop, as will connections to other client operating systems, including DOS, Windows, and Macintosh. HP is also expected to offer a port of Windows NT to its Precision Architecture (PA) RISC chip.

"We believe in choice," Ernst says. Nevertheless, NEXTSTEP will be HP's preferred object environment in financial services, just as HP is

NeXT's enterprise provider of choice. "It is a matter of resources and focus and putting money on the line," Ernst says.

While Object•Enterprise is initially focused on the financial-services industry, it is not limited to that application. NeXT's markets in health care and telecommunications and HP's base in manufacturing and retail industries are also ripe for this technology, but the two companies felt that the alliance would have the most impact if it was tightly targeted on the financial sector, including the securities, banking, and insurance industries.

Market reality

Object•Enterprise isn't alone in the market, of course. The dominant player in trader workstations is Sun Microsystems, which owns 45 percent of a trading market that exceeded \$8 billion in 1992 and is projected to hit \$10 billion in 1995, according to Market Intelligence Research Corporation. Together, HP and NeXT controlled about one-third of workstation sales in 1992.

"Sun dominates this part of the financial market," says Peter Vescuso, HP's commercial market development manager, who explains HP's lack of presence by the fact that it didn't offer a RISC workstation until 1991, when it introduced its Series 700. "It wasn't until then that we had a product that could even compete. We've had a lot of successes since we introduced our RISC product line."

HP's PA-RISC Servers and Workstations

Hewlett-Packard's family of Precision Architecture (PA) RISC workstations, servers, and mainframe-class superservers are designed to scale solutions from the desktop to the data center.

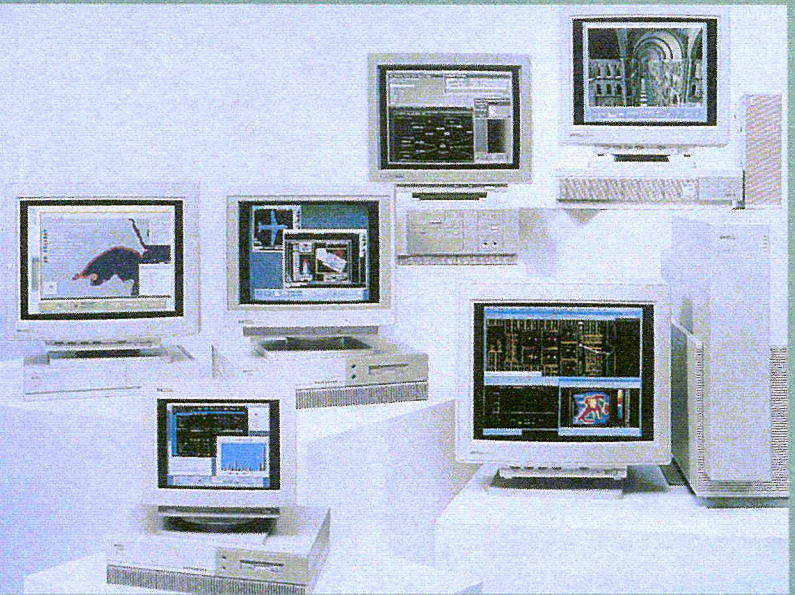
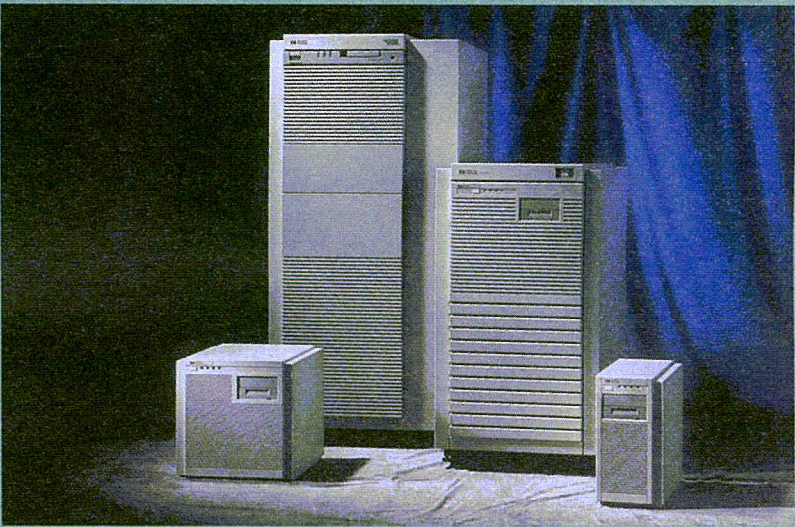
Originally introduced in 1986, the PA-RISC chip is now in its tenth iteration, the superscalar 7100, which HP claims is the industry's fastest RISC processor. Systems built with it are the leaders in price/performance at every level, according to the company, from entry-level workstations beginning under \$5000 to quad-processor superservers costing well over \$500,000.

The wide range of upgradable systems allows customers to exactly match performance and configuration to their needs and to combine systems in distributed, client-server networks. Companies can develop an application once and scale it as its usage grows.

The native operating system for PA-RISC systems is HP-UX 9.0 running Motif 1.2, X11 Release 5, and most other open-systems standards. Under Object•Enterprise, NeXT's Portable Distributed Object system will be ported to HP-UX, allowing Series 800 servers to act as object repositories for NEXTSTEP applications. NEXTSTEP as a whole will be ported to the PA-RISC instruction set and can replace HP-UX as the desktop operating system for Series 700 workstations.

HP Apollo 9000 Series 700 Workstations			
	SPECINT92*	PRICE	DESCRIPTION
Model 715	24	\$4995-\$27,995	Low-cost color workstations
Model 725	36	\$17,895-\$34,495	Mainstream workstations
Model 735	80	\$34,795-\$53,045	Performance desktop systems
Model 755	80	\$58,995-\$72,995	Performance deskside systems
HP 9000 Series 800 Business Servers			
F-Class	22-38	\$8700-\$15,000	Small business/branch office systems
G-Class	38-82	\$17,000-\$76,000	Small business/workgroup systems
H-Class	34-82	\$26,500-\$109,000	Medium business/departmental systems
I-Class	38-82	\$60,500-\$129,500	Large business-division systems
HP 9000 Corporate Business Server 890			
Model 890/1	1215	\$165,000-\$319,000	Multiprocessing superservers for
Model 890/2	2253	\$230,000-\$442,000	high-end database and main-
Model 890/3	3306	\$295,000-\$545,700	frame alternative systems
Model 890/4	4301	\$360,000-\$668,500	

*Industry-standard performance benchmark



What do the two words, object and enterprise, mean for Hewlett-Packard?

HP has been one of the early pushers of object activity at the distributed-enterprise level, but we hadn't developed a world-class desktop operating environment in the current context. We think NeXT has not only a world-class environment but the only one that is available today. Combining that leading-edge development and authoring environment with our enterprisewide capability to handle the transport and management of these objects, as well as HP's support, sales, and service around the world – that's what Object•Enterprise (OE) is.

Why is Object•Enterprise focused specifically on the financial-services market?

It was not because financial services is the only place where we think this applies. But given the size of NeXT and given the fact that you want to provide a full solution in terms of partners, services, and marketing programs, you have to focus. HP is a \$17 billion company and we have only three strategic industries: manufacturing, telecommunications, and financial services. This relationship is aligned with one of our strategic industries.

What kind of reaction have you had from the financial market so far?

The customer response has been phenomenal. In some cases, it has come from companies where NeXT may have had some activity. But more important, we are hearing from HP's own base in the financial-services industry. They're saying, "HP wouldn't have done this unless there were real value in it." If they didn't know NeXT before, now they're asking to understand it.

How big an opportunity does Object•Enterprise represent?

When we talk about the enterprise, we mean going from the desktop to the midoffice, the back-office, and all the way into the enterprise OLTP (on-line transaction procession) systems. That's a huge piece. The biggest opportunity is taking the information that was on the trader's desktop and making it available to institutional investors and commercial customers. Or if you're a private bank, moving it into your branch offices. It's hard to put a number on it because nobody cuts data that way. All I can say is that it's huge and that HP is growing about 70 percent a year in financial services.

Is OE exclusive to HP? What about other server manufacturers who have a relationship with NeXT?

The principle is important here. We don't believe in exclusive relationships in the sense of providing solutions to customers, and we wouldn't have wanted NeXT to enter into an exclusive relationship. On the other hand, you are limited by your resources and ability to focus. So what we have said is that for some period of time we will jointly market together into the financial-services industry.

HP's workstation business has long been number two to Sun. How does this relationship affect that rivalry?

Number one, Sun does not have an object environment for the desktop.

Two, Sun does not have the enterprisewide capability that HP does. So for a customer looking for that today, the deliverable solution is from HP and NeXT. Keep in mind that when you look at the whole enterprise market, HP is the number-one supplier of RISC systems and of UNIX systems.

What's the timing of the PA-RISC port? NeXT doesn't have great record of shipping things on time.

HP does have a great record of shipping things on time. We have laid out very specific project timelines and milestones that we can jointly manage and deliver on. I know Steve is as committed as I am to make sure that

Object•Enterprise is a reality and not just the latest in a series of alliances that end up meaning nothing for customers. As for timing, you'll be able to have PDO running on HP servers before the end of the year. We'll also have NetInfo supported and linked into our network management. The full NEXTSTEP to PA-RISC port is due in mid-1994.

NEXTSTEP is an operating system with its Mach kernel. But HP has its own UNIX. How do they jive?

HP-UX is still available as an option for people who want the Motif-based operating environment at the desktop. For those who chose the NeXT environment for its advantages, they can use the same HP hardware but a different operating system and software set. It meets HP's functionality at the server level and rides it all the way up the enterprise.

HP is an open-systems company while NeXT has a reputation for proprietary systems. How does that reconcile?

NeXT has never said it doesn't support standards. It just never had the hundreds of people sit on the standards bodies that HP has. NeXT chose to push the technology and take a leadership position. It was part of our

requirement for this partnership – though it didn't take much twisting of anybody's arm – that NeXT use the strength of HP's knowledge of standards to tie into the DCE, DME, and CORBA-compliant standards.

One of our challenges is that CORBA doesn't define full object interoperability, which is where all of us would like to be. Because of the object focus of the partnership, we have the real opportunity to work together to drive the standards further. I believe that object standards will be driven by those who really do something, not just put the paper spec in place.

How is the relationship working after a few months?

Once we got the groundwork for the relationship laid, it's just been a matter of opening the doors and letting the technical people connect. As our people have started working with NeXT, they are increasingly impressed with the quality of the technology and the capabilities that are there. That creates a very solid base of mutual respect. And this is also true from a marketing standpoint. Over and over again in customer situations, the one-two punch of technology leadership and solid ability to deliver on a worldwide basis is working. The value proposition is there.



"The Value Proposition Is There"

As Hewlett-Packard's worldwide chief of financial services marketing, Ruann Ernst is the HP executive responsible for the relationship with NeXT. In

early August, she discussed Object•Enterprise with NeXTWORLD Editor in Chief Dan Ruby.

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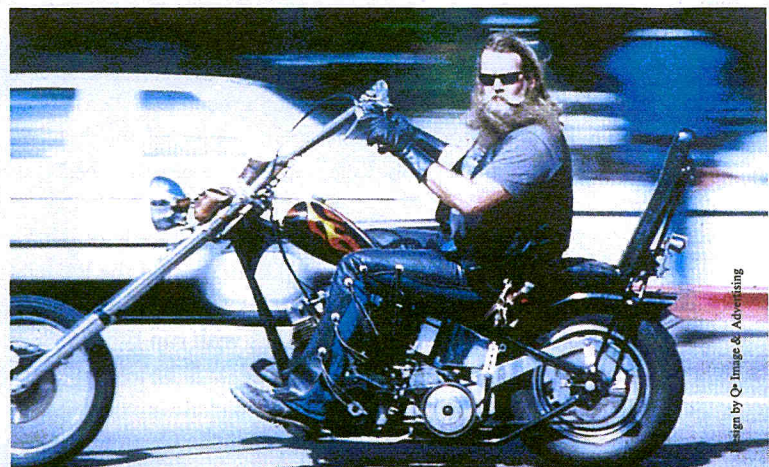
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But despite its high profile, the trading floor represents a very small part of the financial industry. According to Waters Information Services, there are only about 800 trading rooms in North America, totaling about 35,000 trading stations. Worldwide, the figure for trader's and analyst's workstations may be 100,000, NeXT's McCrory says.

HP's vision is not just the desktop but the entire enterprise, where HP is already the leading supplier of both RISC systems and UNIX software, according to Ernst. "Sun is not the competitor we run into at the enterprise level," she says.

The big payoff for Object•Enterprise is the opportunity to connect the tools on the trader's desktop to midoffice databases and back-office production systems, as well as make trading information available to branch-office customer-service operations and even to commercial customers. Now instead of tens of thousands of seats, Object•Enterprise is targeting millions of prospective users.

OE products

The key, as always with NEXTSTEP, is application development. By tying its development tools and user environment to HP's scalable hardware architecture, Object•Enterprise will permit deployment of NEXTSTEP custom applications throughout a business.

While much of the focus of the HP deal is on the port of NEXTSTEP to PA-RISC workstations, the biggest benefits will derive from NeXT's Portable Distributed Object (PDO) system running on HP servers. Formerly, NEXTSTEP objects had to reside in a single application on a single machine. With the Distributed Object System introduced in NEXTSTEP 3.0, applications could include objects residing on remote NEXTSTEP machines over a network. With PDO, objects can be stored on non-NEXTSTEP servers (see the sidebar, "NeXT's Portable Distributed Object System").

This permits systems to keep many virtual objects alive at all times, even when the application that spawned it goes away. If a new object is put into an app, it can be brought to life without a recompile. Before PDO, Swiss Bank had to cobble together a "black wall" of NeXT machines to act as an object store. "It got the job done, but what we really needed were server-class machines," Koop says.

That's where HP's hardware comes in – a complete family of workstations, servers, and mainframe-class systems, all built around the PA-RISC processors (see the sidebar, "HP's PA-RISC Servers and Workstations"). Customers can begin deploying Series 800 servers with run-time PDO in the fourth quarter of 1992. NEXTSTEP as a whole will be available on Series 700 workstations by mid-1993.

The NEXTSTEP and PDO ports will support the Open Software Foundation standards for distributed computing, as well as the Object Management Group's CORBA standard. "We support the standards that make sense. The message is that Object•Enterprise interoperates with, and adds value to, open systems," McCrory says.

Object•Enterprise may even help set future standards for full object interoperability, a step beyond CORBA. "I believe that object standards will be driven by those who really do something, not just put the paper spec in place," says Ernst.

"No-lose" equation

With Object•Enterprise, and unlike some other industry alliances that provide little of substance, HP and NeXT are committed to doing something for customers. So far, the two companies say, the integration is working well. "As our people have started working with NeXT, they are impressed with the quality of the technology and the capabilities that are there. That creates a very solid base of mutual respect," Ernst says.

The extent to which Object•Enterprise becomes a core message for HP remains unknown. "We are a piece of HP's story. It is not yet clear if it is a big or small piece. It is critical for us to integrate into their strategy," NeXT's Weissman says.

With HP as a partner, NeXT has credibility that it lacked alone. Last year, NeXT fought tooth and nail for sales to major financial firms such as J.P. Morgan and too often came up empty. Now potential buyers perceive less risk.

Just as financial firms manage risks in interest or exchange rates, they also manage risk with their technology portfolio. With Object•Enterprise, the risk is modest while the potential gains are immense. There's that equation again: NEXTSTEP objects plus HP enterprise equals future profits. And customers like Dwight Koop couldn't be happier: "Every month we deploy we make money. It's a no-lose situation." ♦

DAN RUBY is editor in chief of NeXTWORLD. SIMSON L. GARFINKEL and ELIOT BERGSON contributed to this article.

Object Glossary

CORBA – Common Object Request Broker Architecture

A standard that allows objects to find other objects on the network and send them messages. Using CORBA, entire application programs can appear as single objects or services. CORBA was developed by the OMG (Object Management Group), an industry coalition founded in October 1989 to develop standards for network-based object-oriented environments.

DCE – Distributed Computing Environment

A standard for network-based computing developed by the Open Software Foundation. DCE consists of two parts: a developer environment for creating applications and a user environment for running them. The developer environment includes a secure remote-procedure-call (RPC) system, Kerberos-based authentication, a distributed directory service, support for replication, network time service, and support for multithreaded programming.

The DCE user environment includes a distributed file system, diskless workstation support, and "personal computer integration services," which allows file sharing and printing from PCs to DCE.

DME – Distributed Management Environment

A network-management system, based upon DCE, that is currently under development by the Open Software Foundation.

DO – Distributed Objects

NeXT's system for sending messages between objects that reside in different application programs or on different computers.

Message

An instruction that one object sends to another object. Each message consists of a name and, optionally, one or more pieces of data. A simple message might tell an object to display a window on the computer's screen; a complicated message might compute whether or not to approve a home-mortgage application.

Object

A small, self-contained, and reusable building block used for piecing together complicated programs. Objects communicate with other objects by sending messages.

PDO – Portable Distributed Objects

A version of NeXT's Distributed Object system that can run on versions of UNIX other than NEXTSTEP.

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DISCOVER A NEW WORLD

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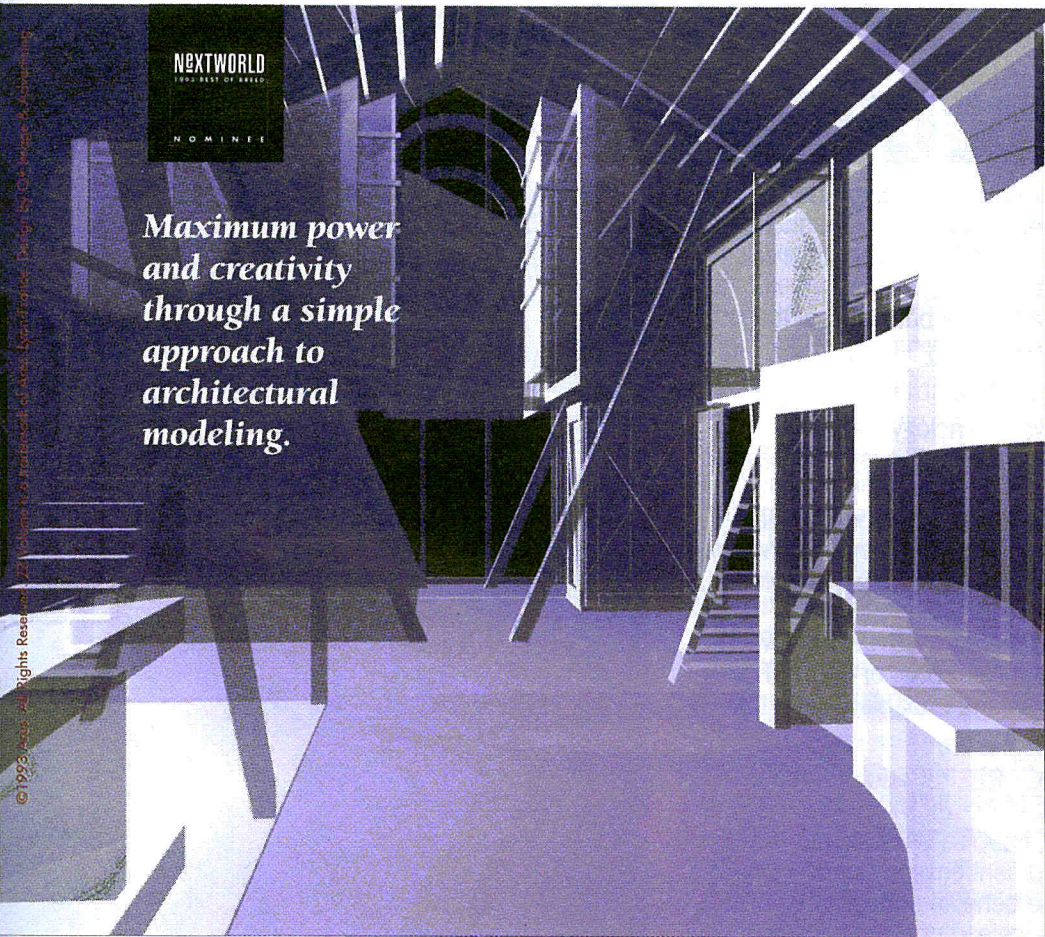
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Architectural Design for NEXTSTEP

ZE volume

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There was a time when NEXTSTEP boasted one of the most sophisticated developer environments in the entire computer industry. NeXT's Application Kit, InterfaceBuilder, and Digital Librarian, combined with EMACS, GCC, and GDB from the Free Software Foundation, gave us a powerful (albeit disjointed) environment in which it was easy to pump out applications five to ten times faster than on any other platform.

It's still faster to develop programs under NEXTSTEP than anywhere else, but NeXT is losing the edge when it comes to programmer's tools. Fact is, there's a long and growing list of tools to be found on other systems that are missing from NEXTSTEP.

Revision control. NEXTSTEP ships with RCS (Revision Control System), but it's not integrated with the development environment. That means that you have to run RCS from the command line. To make things worse, you can't use RCS with InterfaceBuilder files at all, since 3.0's .nib files are really directories.

Objective-C class browser. Imagine being able to graphically scroll through your program's Objective-C class hierarchy, click on a class, and instantly edit its instance variables and methods—without having to pull a lengthy file into your text editor and scroll through thousands of lines of source code. Class browsers have been standard in the C++ community for years.

Faster linking. Make a few minor changes to a major program with NEXTSTEP and you'll spend minutes waiting for your program to relink. It's hard to understand why NeXT's software team hasn't mastered incremental linking—a standard feature on other platforms.

Interpreter. Anybody who has ever used LISP knows the advantages of a development environment that combines a compiler with an inter-

preter. Want to try a new idea? Type it in and run it: no need to compile or link at all! While an Objective-C interpreter would be a major undertaking for NeXT, an interim solution could be found by modifying the development environment so the programmer could edit, recompile, and reload an individual Objective-C class into a program that is being debugged. Developers wouldn't have to relink, start up a new copy of GDB, reload, and finally restart their application programs.

Meanwhile, lots of developers have been filling my mailbox with gripes about NEXTSTEP 3.1. They want NEXTSTEP's infamous Text object fixed. They need security built into NEXTSTEP's Distributed Objects system.

They want a more sophisticated debugging environment. And they want more objects in the NEXTSTEP library—a general-purpose String object would be a good start.

At NeXTWORLD Expo, Steve Jobs demonstrated NEXTime, claiming that "research is alive and well at NeXT." That's all well and good, but most developers don't want to see demos of zippy new research projects—they want tools they can use to create better, more reliable applications.

Rumor has it that NeXT has finally gotten the hint and will port the NEXTSTEP environment to other operating systems. That's great, but ports are not enough. NeXT has got to extend this award-winning development environment, or else it will soon find itself marketing last year's best of breed to a new generation of programmers who use C++ and Motif tools that fulfill their wish lists. ♦

SIMSON L. GARFINKEL explores technical issues each month in *Developer Camp*.

Developer Wish List

SIMSON L. GARFINKEL

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NeXT AND HEWLETPACKARD DELIVER THE POWER OF OBJECT-ORIENTED ENTERPRISE

Financial services is an industry in which time is critically important.

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Now NeXT and Hewlett-Packard together offer a suite of business solutions that spread this power throughout the entire enterprise.

ANNOUNCING OBJECT-ENTERPRISE.

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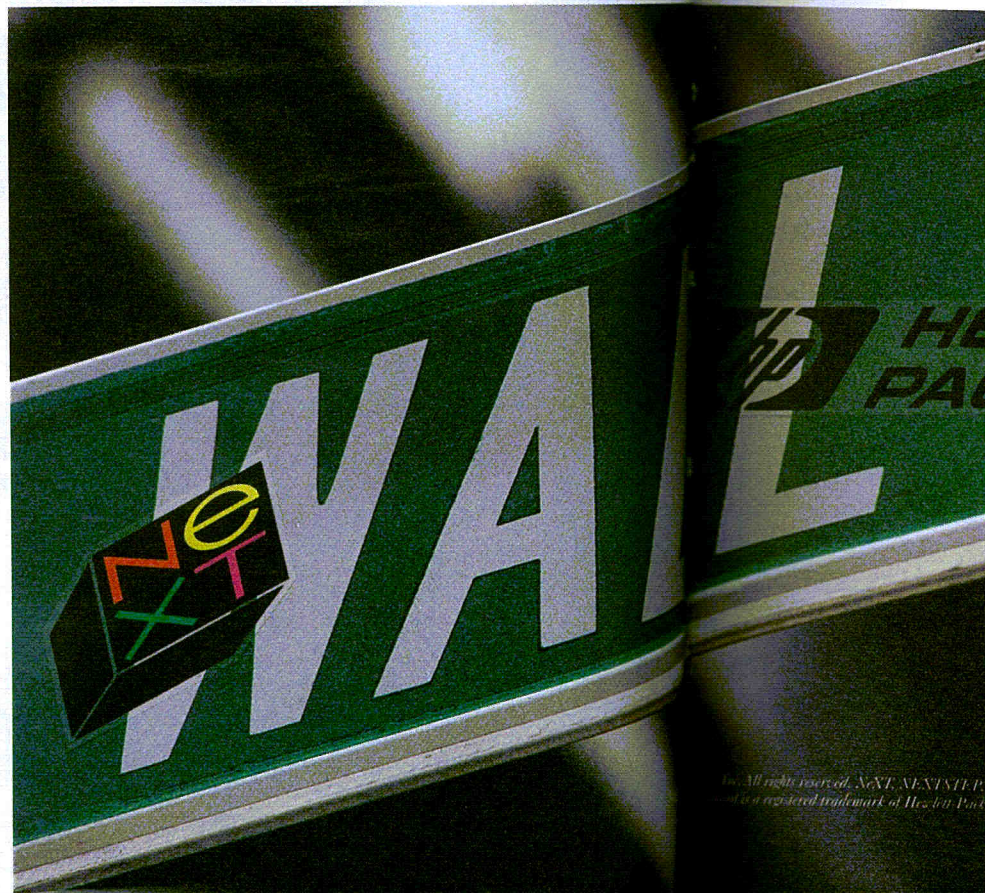
Object-Enterprise brings NEXTSTEP™ software to a full spectrum of Hewlett-Packard hardware, from PCs to workstations, with full support for NEXTSTEP objects on business servers. The result is a seamless and scalable system that offers a true competitive advantage.

NEXTSTEP: "...PROBABLY THE MOST RESPECTED PIECE OF SOFTWARE ON THE PLANET."

The opinion is from *Byte Magazine*. The fact is, NEXTSTEP is without rival as the only shipping object-oriented user and development environment.

Many Wall Street traders are already reaping the benefits of this technology, deploying complex custom applications in months instead of years.

That's because NEXTSTEP allows applications to be constructed in a modular



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need to compile or a major undertaking of debugging the development, and reload and debugged. Development of GDB, reload, and

mailbox with gripes from the NeXT object-oriented Objects system. The sophisticated debugging they want more object library – a general-purpose could be a good start. Expo, Steve Jobs of NeXT, claiming that the session proved that all at NeXT.” That’s the most developers don’t have the new research tools they can use to build applications. NeXT has finally moved to other operating systems. NeXT has got to extend its reach and it will soon find itself with programmers who

issues each month

West Point talks about the hundreds of thousands of dollars it spends on training just one cadet. The Air Force spends over \$1 million to create just one fighter pilot. But at NeXT, it lets see – \$200 million getting things right so 20 salespeople can be successful – that’s \$10 million per salesperson (of course, that \$200 mil was the total invested in NeXT over five years).

Bill Wesemann, NeXT’s VP of sales, has retooled field sales with people skilled in software sales. The good news is that the overhaul is moving toward completion with a talented crew of new or rededicated salespeople and systems engineers. But with all the turnover comes the danger that field sales might lose its collective memory, those lessons learned at such high cost. For \$10 million, they didn’t even get one of those nifty binders with the handouts. So here are my notes from the harshest professor of all, the open market.

The salespeople must have the right product to take to a customer, they must take that product to the right customer, and they must approach that customer rather than hope that the customer comes to them.

First, NeXT has to empower its talented (and expensive) sales force with the right products and message. From the beginning, sales did not drop the ball so much as it had the ball dropped on top of it. Remember, these are the guys who were given 7030 Cubes without hard disks – and they actually sold some. From the beginning, field sales was screaming for the correct product mix, but its voice did not have proper standing in the company.

As we move into the new world of software, NeXT must listen to customers through the people closest to customers – the sales force. If sales suggests product modifications, management should listen to it early this

time out. On the marketing side, one consistent message might be nice. Though a flavor-of-the-week might be a good excuse to call a client for an appointment, it does tend to interrupt a multimonth sales cycle.

For now, NeXT has both the right product and sort of the right message, so they should stay focused and on top of this.

Second, the sales force must take this product to the right customers and look for incremental wins. If the old sales force had one major flaw, it’s that it was always swinging for home runs in every market rather than banging out singles in specific market niches. The new team should concentrate on sites where information technology is viewed as a competitive

weapon and there is a willingness to make enterprisewide investment in object technology and custom applications to achieve this goal.

NeXT sales has neither the time nor resources to bring customers from zero to NEXTSTEP. They must approach only those that are ready to hear the message.

Third and last, NeXT sales must concentrate on actually approaching these customers and creating demand. NEXTSTEP is not the kind of product that sells by word-of-mouth. Even when a customer has heard

of NEXTSTEP, it isn’t likely to seriously consider the OS until NeXT makes the initial contact. This may seem obvious, but much of NeXT’s prior sales strategy focused on pull from the market rather than push into it.

For \$10 million a head, NeXT has, so far, seen few results from its investment. But if the company has learned these three lessons, then the money will have been well spent. ♦

DAN LAVIN *comments on business issues in NeXT Ink.*

Expensive Lessons

DAN LAVIN

HEWLETT-PACKARD NOW OBJECT-ORIENTED AT AN ENTERPRISE-WIDE SCALE.



fashion, using software objects as building blocks. These objects, easily re-used and maintained, take the place of complicated and error-prone computer code.

While the rest of the computer industry is still years away from implementing an object-oriented system, NEXTSTEP is here today. Polished and perfected in its third release

AN OBJECTIVE POINT OF VIEW, FROM DESKTOP TO DATA CENTER.

Hewlett-Packard has long led the drive toward interoperability and object computing, offering a scalable hardware architecture from client desktop to the enterprise-wide data center.

With a family of products including Intel® 486-based Vectra PCs, PA-RISC workstations and business servers, Hewlett-Packard delivers leading technology at all levels. Along with quality engineering and rock-solid service and support.

By joining in Object-Enterprise with NeXT, Hewlett-Packard is redefining the level of performance you can expect from an advanced trading system. And its industry-standard hardware provides the assurance that Object-Enterprise will integrate seamlessly with your existing investments.

SEE HEWLETT-PACKARD AND NeXT. NOW IN CONCERT.

Object-Enterprise gives you one point of contact to tap the collective power of Hewlett-Packard and NeXT. And we do encourage you to make contact.

Call us at 1-800-TRY-NeXT for more information, and to reserve seats at one of the Object-Enterprise Seminars scheduled in New York, Chicago and San Francisco throughout the summer.

We think it will be a day well spent. And we’re keenly aware of how valuable your time can be.



HEWLETT
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Bottom-line ratings for NEXTSTEP PCs

The first NeXTWORLD Box Scores

by DAN LAVIN and M CARLING

NeXTWORLD's rating system for Intel-based hardware incorporates the quantitative performance benchmarks we introduced last issue with qualitative evaluations of system design, NEXTSTEP orientation, support, and value. Each month, we will provide capsule Box Score reviews of significant Intel-based computers that are configured to run NEXTSTEP.

The cube rating is derived from a formula that multiplies a score in each category by the weighting for that category. This score is parallel to our normal rating system: three cubes for a good, solid machine that does the job, up to five for spectacular, best-of-breed hardware, and down to one for a poor product or zero for unacceptable defects.

A NeXTstation Turbo Color (NsTC), which had a slower processor and higher price than equivalent Intel systems but excelled in overall integration, would rate about 3.5 cubes. Note that the ratings are not static: As Intel-based hardware standards evolve and pricing changes, we will update the system to reflect market conditions.

Performance is rated on a sliding scale depending on the class of machine. Developer systems, which are heavily loaded with memory and disk, must run faster than user systems to receive an equivalent score. There will be a third scale to account for configurations specific to notebook computers. Therefore, our ratings should not be used to compare machines across classes.

Here are the factors we consider in each rating category:


Performance. Our MIPS and disk benchmarks measure the raw performance of the machine. Speed in real-world applications is measured by the Webster and Compile benchmarks, as appropriate for the machine we are reviewing.


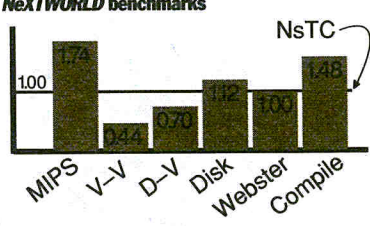
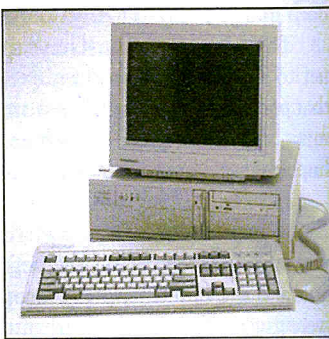
Video. The speed and quality of the graphics subsystem are extremely important in a NEXTSTEP system. To measure speed, we include our DRAM-to-VRAM (D-V) and VRAM-to-VRAM (V-V) benchmarks here. The potential quality of the graphics are rated by resolution and maximum VRAM. The actual quality of the screen image is judged on color, crispness, and overall stability.


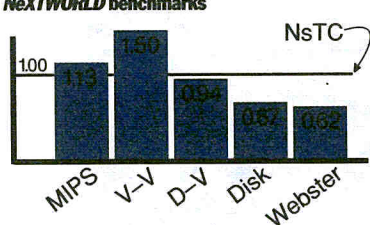

System design. Intel machines are often viewed as commodities, but myriad component choices and engineering decisions seriously impact performance and productivity. We look at the quality of the keyboard and mouse, the overall quality of engineering and construction, and the choice of bus and hard drive. Other categories include processor upgradability, ease of service, footprint, and noise level.

NEXTSTEP orientation. Though legions of Intel-based machines will work with NEXTSTEP, we believe that users are better off with a NeXT-savvy vendor that can answer their questions and guarantee full compatibility. This category also measures ease of NEXTSTEP installation.

Support. Factors include warranty, documentation, guarantee, and availability of phone support.

Value. This subjective factor involves a judgment of the performance, quality, and components of a system, related to its price. 

Box Score	Developer
Data General Dasher 486 DX2/66 LE2	
	
\$7500	
Configuration DX2/66; 36MB RAM; 500MB SCSI drive; 1024-by-768 16-bit ATI graphics; 4 EISA, 2 ISA, 1 LB slots	
NeXTWORLD benchmarks	
	
Performance High performance due to secondary cache, EISA, and local bus.	
Video Crisp and clear, but the present ATI chip set has a bug that brings down its score. High-quality monitor is only 15 inches.	
System design Big, but lots of slots. Built-in CD-ROM. Disassembly requires no tools.	
NEXTSTEP orientation Data General targets NeXT market. OS preinstalled with full docs; tech support person hadn't heard of NEXTSTEP.	
Support 90-day warranty; many service and support options; average system documentation; no money-back guarantee.	
Value Powerful machine at reasonable price. Good value, especially if used together with DG servers.	
	
Data General, 3400 Computer Dr., Westboro, MA 01580. 800/343-8842 (U.S.); 33/1/40.94.62.82 (Europe); 65/258/99.77 (Asia/Pacific).	

Box Score	User
Epson NX User System	
	
\$4949	
Configuration DX2/66; 20MB RAM; 200MB IDE drive; 1120-by-832 16-bit Wingine graphics; 4 ISA slots	
NeXTWORLD benchmarks	
	
Performance Disappointing performance due to lack of CPU cache and limited RAM and disk.	
Video Wingine delivers outstanding video speed with excellent color at native NEXTSTEP resolution. Noticeable screen banding.	
System design Lack of SCSI is significant fault but small footprint and solid engineering are pluses.	
NEXTSTEP orientation Epson targets NeXT market; OS preinstalled with full docs, but upgrade requires add-on SCSI.	
Support 90-day warranty; toll-free line; average documentation; no money-back guarantee.	
Value Superior video is offset by low horsepower. Price is about as expected for name brand in this configuration.	
	
Epson America, 20770 Madrona Ave., Torrance, CA 90503. 310/782-0770, 800/922-8911.	

All-in

1VISION for plug-in publishing

by RICK REYNOLDS

To do publishing with NEXTSTEP, you can buy all the usual pieces: Ilveto for layout; Image, TMS for image; Compose in Color for imaging. You can make them work with the support of a Pixel Magician.

Or you can buy the publishing environment GmbH called 1VISION.

The "vision" of 1VISION is integrated publishing environment with functional modules into a common framework. Rules may be provided directly or they may be custom programmed. 1VISION's integration programming interface sort of system can be a system integrators, who 1VISION to a client know they can quickly build a package to handle anything the package to be missing.

It is a fine idea. The 1VISION that none of tms's individual rules are compelling and the framework is confusing at first.

The vision

1VISION is structured as work with a set of basic modules mostly to the environment. An icon scroll bar reminds Preferences that contains each of the modules present another icon scroll bar within the active module, inspector panel that has associated with the currently active module.

Colors appear on the screen the same as when printed, the tms SoftProof system, knows about monitors and lithography. Color-separation files are also built into the system. 1VISION has a neat system

All-in-one DTP

1VISION from tms GmbH integrates plug-in publishing modules

by RICK REYNOLDS

To do publishing work with NEXTSTEP, you can buy all the individual pieces: Illustrator or Virtuoso for drawing; PasteUp, FrameMaker or (soon) Pages for layout; and Image, TIFFany, or Compose in Color for image retouching. You can make them work together with the support of utilities like Pixel Magician.

Or you can buy the all-in-one publishing environment from tms GmbH called 1VISION.

The "vision" of 1VISION is an integrated publishing environment with functional modules that plug into a common framework. The modules may be provided directly by tms, or they may be custom programs that are written to 1VISION's API (application programming interface). This sort of system can be a dream for system integrators, who can sell 1VISION to a client knowing that they can quickly build a module to handle anything the package happens to be missing.

It is a fine idea. The problem is that none of tms's individual modules are compelling and the overall framework is confusing and buggy.

The vision

1VISION is structured as a framework with a set of basic menus relating mostly to the environment itself, an icon scroll bar reminiscent of Preferences that contains icons for each of the modules presently loaded, another icon scroll bar with tools icons for each kind of functionality within the active module, and an inspector panel that has controls associated with the currently active tools.

Colors appear on the monitor the same as when printed, thanks to the tms SoftProof system, which knows about monitors and offset lithography. Color-separation facilities are also built into the system.

1VISION has a neat system of

highlighting items over which your mouse is traveling, so you know what you would select if you clicked at any time. It also flashes the name of the element in a space at the top of the window, but I found it did so even when I passed over blank desktop space.

1VISION allows dragging and dropping of TIFF and EPS files and properly supports NEXTSTEP 3.1's filter services (allowing you to use B  chus's Image Agent for additional import formats).

The modules

tms ships 1VISION with a set of modules for drawing, layout, and image processing.

Manet is a PostScript-based professional drawing package, with all the features you would expect: Bezier-curve editing, text-to-path conversion, blends, and rich color support. *Manet* also has an expandable collection of frequently used PostScript forms and figures.

Manet gave very good feedback during vector-graphics manipulation, and allowed good selection and manipulation of items, as well as good zooming controls. Absent (but not missed) are the tools, such as automatic charting and heavy text handling for single-page composi-

tion, that seem to get tossed into drawing packages these days. Presumably, those tasks would simply be handled in other parts of 1VISION and don't need to be tacked onto drawing tools.

Lanston, the page-layout and typesetting module, is more suited to structured typesetting than freehand-text design, so it feels

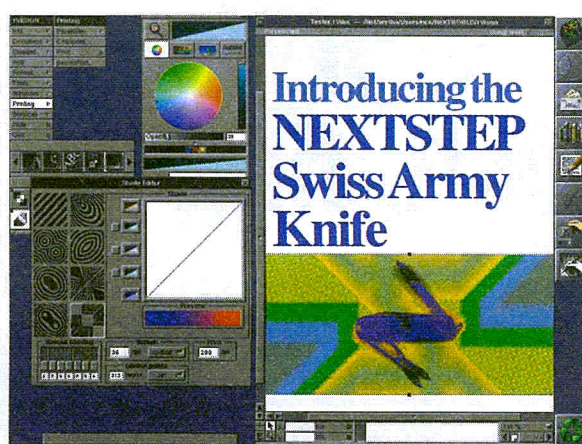
a lot more like FrameMaker than PasteUp. Missing, unfortunately, are the bookmaking functions and automatic table-of-contents and index-generation facilities that make FrameMaker a pleasure to use on long documents. *Lanston* has plenty of precision controls for text handling, and a sophisticated hyphenation and spell-checking system that sports dictionaries in eight languages. Column handling is excellent. Small things, like the page-numbering facility, are creative and helpful.

Cranach is an image-processing and color-correction program. Like Photoshop, *Cranach* allows you to manipulate individual pixels of the image with a wide variety of tools and apply filters to regions or the entire image. Masking support is substantial and more traditional in approach than those in Appsoft Image, but I prefer Image's 8-bit masks to *Cranach*'s more Photoshop-style single-bit masks.

If you are a proficient Photoshop user, you will definitely experience a substantial learning curve. Every tool is approached differently, while the 14 included filters also work differently as well. There is limited support for scanning directly into the program.

The reality

While 1VISION is an intriguing idea, the implementation leaves much to be desired. I could not decipher the significance of the small, grayscale icons controlling which tools palette is presented; the arrangement of commands was counterintuitive; and tools were hard to find, since they appeared only on palettes and not in the menu.



Many small modules are also included with 1VISION. Some fun effects are possible with the Shade Editor module.

Annoying alert boxes confirm any attempt to delete an item with the delete key; this can quickly become bothersome. Deleting even small items occasionally took as long as 15 seconds.

1VISION is also filled with bugs: The program launched correctly for me only from a fresh log-in session. Undo rarely worked correctly. Labels on some buttons ran off the edge. 1VISION is also a memory hog, needing at least 32MB of memory to get anything done. We found problems in *Lanston* (disappearing text) and *Cranach* (vanishing controls) as well.

1VISION was written in German; only some of the modules have been localized for English. (Not surprisingly, *Manet* lacks the option to have measurements presented in inches.) The system lacks on-line documentation, and we were unable to obtain English-language paper documentation to review.

The modules are reasonably full-featured, but none of them is superior to the best alternative, stand-alone application. When you move to some of the smaller areas of functionality, the discrepancy looms even larger: 1VISION's import and export functions do not begin to approach Pixel Magician's.

1VISION is a great concept, but it is not yet finished. For now, collecting individual publishing tools from different vendors will provide you with a better system than tms has managed to produce in this initial attempt. ♦

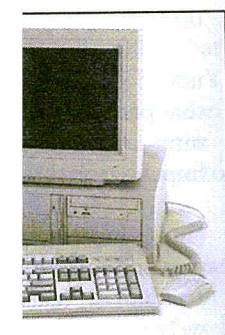
RICK REYNOLDS is technical editor at Publish and a contributing editor to NeXTWORLD.

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many service and average system docu- money-back guarantee.

at reasonable price. cially if used together



400 Computer Dr., 1580. 800/343-8842 \$4.62.82 (Europe); Asia/Pacific).

er

NeXT market; OS prein- docs, but upgrade re- CSI.

y; toll-free line; aver- on; no money-back guar-

s offset by low horse- about as expected for his configuration.



, 20770 Madrona Ave., 0503. 310/782-0770,

1VISION 1.60.3

1VISION's intriguing concept of an extensible publishing environment is buried under a confusing user interface and buggy implementation. Wait for Version 2.

\$580* *Manet* (includes 1VISION)
\$871* *Cranach* (includes 1VISION)
\$871* *Lanston* (includes 1VISION)
\$3775* 1VISION (includes *Manet*, *Cranach*, and *Lanston*, as well as other modules, drivers, and tools, and technical support, free updates, and free new modules for one year)

*All prices converted at press time: 1.722 DM to \$1.

tms International, P.O. Box 178,
3760 AD Soest, The Netherlands.
31/2155/25792

Design Your Own Voice-mail

Press 1 for integrated communications with i•link's telephony software

by LEE SHERMAN

As computers evolve from information processors to communications tools, telephony software is becoming as important as word processors and spreadsheets. With mix, even the smallest entrepreneur can have a phone system that rivals multinational corporations.

mix (an acronym for multimedia information exchange) is a software and hardware system that provides data, fax and voice-mail capabilities on a single telephone line, with incoming calls automatically routed to the appropriate function. Lower-cost versions of the system are available if you don't need data or fax support.

Originally developed for use with NeXT's proprietary hardware, the mix box attaches to, and draws its power from, the NeXT's DSP port. The box, which is a bit smaller than a conventional modem (4.25 inches by 4.25 inches by 1.25 inches), converts the analog telephone-line signals into the digital signals understood by the computer. The rest of the mix functionality is completely implemented in software.

Owners of Intel-based machines

will be able to use mix with i•link's announced but unreleased i56 DSP card, which will bring all of the NeXTstation's sound and DSP capabilities to white hardware. Since the i56 requires NEXTSTEP 3.2, we were unable to review it at this time.

The mix software seamlessly integrates with NEXTSTEP's e-mail, fax, and sound-recording capabilities, making it feel more like an extension to the system software than a third-party application. You send faxes through the Print panel just as you do with a fax-modem; voice-mail messages can be made to show up in your mailbox along with the rest of your mail. Combined with NEXTSTEP's capability to alert you by mail when a fax has come in, you end up with one centralized mailbox for all incoming messages. Outgoing and incoming messages are recorded using the built-in microphone and stored as digitized sound files.

You'll need to make sure you've got enough disk space to support heavy use of the answering machine or if you receive a lot of faxes (a 30-second message will take up approximately 225KB, while incoming faxes can take up between 10KB

mix 2.0



mix is integrated communications software that combines the functionality of a fax-modem, a telephone, and an answering machine. It includes a fully programmable system for developing voice-mail applications. While mix can give even the smallest entrepreneur the communications capabilities of a multinational corporation, its limited data-modem speed and hardware requirements won't appeal to every user.

Black hardware:

\$565 box and call; \$761 box, call, and fax; \$865 box, call, fax, and data

White hardware (includes i56 DSP card): \$8135 box and call; \$1009 box, call, and fax; \$1113 box, call, fax, and data

Alembic Systems International,
14 Liverness Dr. E., Ste. G-228,
Englewood, CO 80112. 303/799-6223.
alembic@alembic.com

and 250KB of disk space per page). The mix address book shares its information with the address book in the Workspace Manager, so you only have to enter names and addresses once.

Because the mix answering machine is based in software, you can reprogram it to suit your needs. mix ships with four sample answering machines that can be used right out of the box: a conventional answering machine with a single outgoing message that sends incoming messages to your NeXTmail mailbox; a sophisticated voice-mail system that can take messages for several different individuals; a call-forwarding system that will record a message, then hang up, call another telephone number, and replay the message to whomever answers; and an automated ordering system that allows the caller to leave a message, enter a remote-access code, and enter order numbers.

If you don't like any of these, you can develop your own using i•link's icon-based programming language. To develop a program, you simply drop icons from a palette in the order in which you want events to occur. Icons in the palette represent different operations that your answering machine will perform. By using the branch access, remote access, and mail icons, you can create voice-mail systems that are as complex as any commercial system.

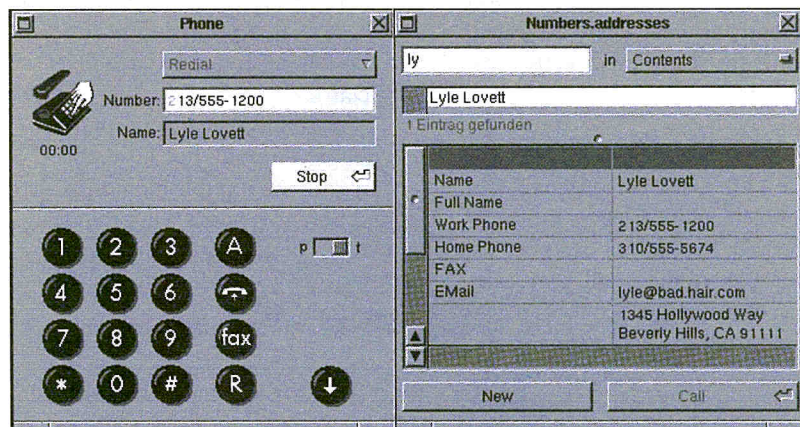
An application called direct is

the main interface to the telephone portion of mix. You can make calls using the on-screen dialer or dial direct from an on-screen address book. With the address book, you can store phone numbers and perform speed dialing; direct will keep a log of all calls as well. You can also dial from the Services menu, if you prefer to use another name and address database such as SBook or DataPhile or wish to dial a phone number from another application such as Edit or Mail. While i•link is to be commended for taking advantage of NEXTSTEP's underused addressing system, we'd also like to see a way to import addresses from the popular address-book programs.

New in Version 2.0 is the ability for mix to function as a 2400-bps full-duplex data modem. You communicate with the soft modem through a special /dev/cum device. We used the soft modem to call several BBSs using Software Ventures' Microphone II with no problem. While the product is now more complete, 2400 baud is too slow by today's standards; the lack of MNP5 is also disappointing. i•link promises increased speed in a future release, as well as support for speaker phone, voice recognition, Caller ID, and the ability to run programs remotely over the telephone. i•link's programming language can also be extended by purchasing additional objects that provide some of the missing functionality. Third parties can also write their own. In short, it's difficult to imagine a voice-mail system that couldn't be developed using mix.

While mix is a fine solution for the installed base of black hardware, we question i•link's wisdom in continuing to base its Intel offering on a piece of proprietary hardware. Today's high-speed modems provide fax and data capabilities, as well as voice digitization, Caller ID, and more. What we would really like to see is i•link software running on off-the-shelf modems such as those available from ZyXEL and Supra.

LEE SHERMAN is a NeXT-WORLD contributing editor.



mix provides intelligent telephone features like speed dialing and call logging. Here the on-screen dialer is being used to dial a name from the program's address book.

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I A N is a NeXT-
buting editor.

The voice of the revolution. Monthly. Now that NeXTSTEP for Intel Processors is shipping along with NeXTSTEP PCs, NeXT has moved to the mainstream of corporate computing—and is leading the object-oriented computing revolution. NeXTWORLD's move to a monthly frequency will serve this expanding market with timely and comprehensive news and information—in one complete package.

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Making Book

Two volumes get you up to speed with NEXTSTEP programming

by GREGORY H. ANDERSON

Before almost anyone had a NeXT computer, thousands had purchased *The NeXT Book* by Bruce Webster. Quickly followed by Doug Clapp's *The NeXT Bible*, these served as good general introductions to NeXT and NEXTSTEP. But until recently, hard technical information was limited to NeXT's own technical documentation (now published by Addison-Wesley). Critical mass in the market has finally spawned a whole round of in-depth books about NEXTSTEP. This month, *NeXTWORLD* reviews two introductions to NEXTSTEP programming. We'll sample other titles in future issues.

The acid test for an introductory programming book is whether you can give it to a new employee, sit her in front of a machine for a few weeks, and watch her bloom, with minimal assistance, into a competent programmer. By that standard, *NEXTSTEP Programming Step One: Object Oriented Applications*, by Simson L. Garfinkel and Michael K. Mahoney, is an unqualified success.

Using simple, progressive, confidence-building examples, Garfinkel and Mahoney quickly cover all the

basics: Windows, Menus, Views, delegates, events, responders, nibs, and Projects.

Newcomers to NEXTSTEP will quickly learn why seasoned programmers find the OS so exciting – and why a copy of this book is included in every Developer Release box.

Both the sample code and the narrative emphasize good programming habits. For example, the discussion of coherence between an interface and its controller code – making decisions on the basis of run-time states, rather than preprogrammed information – is vital to maintaining large object-oriented systems. To reinforce this concept, the authors write a poorly constructed method to set the radix of a calculator, then show how the implementation can be improved with run-time object messaging.

But even a good programming book isn't perfect. It's difficult to justify an entire chapter on threads when several more useful topics are omitted (see below). Also, since this book will provide many program-

mers' first exposure to object-oriented programming, a short background chapter on object-oriented design would be valuable.

Object-oriented design is covered in *NEXTSTEP Programming: Concepts and Applications*, by Alex Duong Nghiem, but that is the only area in which this book is superior to Garfinkel and Mahoney's. Much of the conceptual material is presented without context, and the examples neglect many NEXTSTEP features.

InterfaceBuilder (IB) is not all there is to NEXTSTEP programming, but it certainly helps get programmers hooked. With that in mind, it is unreasonable to force readers through several hundred lines of

cars, he would rather show you the circuit diagrams for the antilock braking system than take you for a test drive, run the speedometer up to 60, and stand hard on the brakes. Microsoft Windows and Macintosh programmers could be excused for bailing out at this point, wondering what the NEXTSTEP fuss is all about.

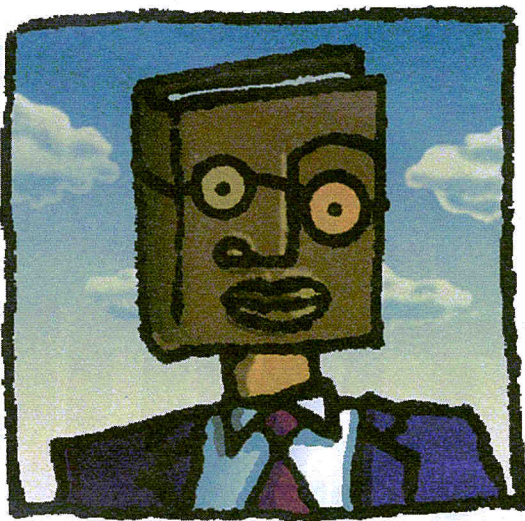
The sample programs are not well developed and include some questionable code. The Money example, which implements a foreign-exchange calculator, assumes how many rows the form will contain and allocates static storage to support it. It would be more instructive and more coherent to set up a secondary matrix for the exchange rates, tie it to the primary form, and eliminate the hard coding.

Nghiem skips many fundamental topics that are covered in the Garfinkel and Mahoney book, such as automatic menu-cell updating, Services provisioning, icon building, setting timed-entry events, using categories as an alternative to subclassing, and understanding the distinction between windows and panels. Given his obsession with writing code in instances when InterfaceBuilder could do the work, it is surprising that the book does not include a sample disk.

Both programming books exclude information that would address growing complaints about the lack of extensibility in NEXTSTEP applications: custom palettes, dynamic code bundles, the run-time system, and distributed objects. Ironically, a good model already exists: InterfaceBuilder. An informed discussion of how IB works internally would cover most of these topics and help programmers appreciate how open-ended design provides user empowerment. ♦

GREGORY H. ANDERSON is president of Anderson Financial Systems, a Springhouse, Pennsylvania developer of custom Wall Street trading applications.

Since one of the books reviewed was co-authored by a *NeXTWORLD* editor, this review was written without input from the magazine staff.



NEXTSTEP Programming: Concepts and Applications

Alex Duong Nghiem

PTR Prentice-Hall, 1993, 604 pages, ISBN: 0-13-605916-3



Accomplishes the seemingly impossible: makes NEXTSTEP programming seem boring. Missing fundamental information and uses uninspired examples.

\$36.00

Prentice-Hall Professional Technical Reference Division, P.O. Box 11073, Des Moines, IA 50381-1073. 515/284-6751.

NEXTSTEP Programming Step One: Object-Oriented Applications

Simson L. Garfinkel and Michael K. Mahoney

Springer Verlag New York, 1993, 631 pages (with diskette), ISBN: 0-387-97884-4



A superior tutorial for beginning NEXTSTEP programmers. Crisp writing, clean organization, excellent examples. Includes diskette with source code.

\$44.95

Springer-Verlag New York, P.O. Box 2485, Secaucus, NJ 07096. 201/348-4033, 800/777-4643.

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- ☐ 19) Computerworld
- ☐ 20) Forbes
- ☐ 21) Fortune
- ☐ 22) Infoworld
- ☐ 23) LAN Times
- ☐ 24) MacUser
- ☐ 25) Macweek
- ☐ 26) Macworld
- ☐ 27) Open Systems Today
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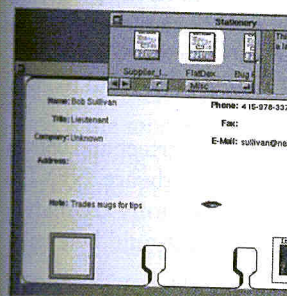
Forms

Forms manage the ultimate paper application, STEP should be a platform. Item with a great design, OCR scanning, full data rationality, print-job management, integrated e-mail, and security. Wrap this up in a STEP interface and provide so users can adapt it.

Unfortunately, Papyrus only a first step in this design, its first release, which includes Forms 1.0.1, a beta of Papyrus sign, and about 25 form design, and about 25 form design, it is useful for little else than storing, filling out, and providing predesigned forms.

The program stores plates in its Stationery panel, forms are kept together in a pop-up menu. Double-click a plate icon and the program fills the form on the screen. It includes a nice variety of fields: check boxes, text, computed images, memos, and multitable – though they lack time/date fields. You can attach text and voice attachments. Fill out the form by typing in each field, you can print, fax the completed document.

That's fine – as far as it goes. Unless you are satisfied with a limited number of ready-made plates, you need a facility for creating new forms or converting existing forms to digital files. Papyrus is a basic layout program, NeXT's Draw application. Papyrus usually comment on bugs in its products, but since this application is a component of a shipping program, it is fair to note that flaws remain.



PapyrusForms stores form templates in the Stationery panel. Documents can include many data types and attachments.

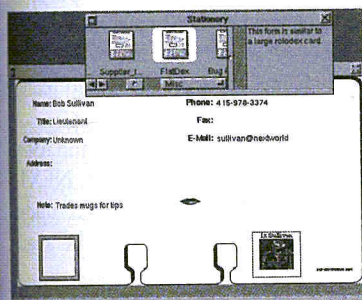
Forms Before Function

Forms management is the ultimate paperless-office application, and NEXTSTEP should be the ideal platform. Imagine a system with a great design module, OCR scanning, full database functionality, print-job management, integrated e-mail, and workgroup security. Wrap this up in a NEXTSTEP interface and provide hooks so users can adapt it.

Unfortunately, PapyrusForms is only a first step in this direction. In its first release, which includes PapyrusForms 1.0.1, a beta of PapyrusDesign, and about 25 forms templates, it is useful for little else than typing, storing, filling out, and printing the predefined forms.

The program stores form templates in its Stationery panel. Related forms are kept together as items in a pop-up menu. Double-click a template icon and the program opens the form on the screen. The forms include a nice variety of field types — check boxes, text, computer files, images, memos, and multicolumn tables — though they lack calculated and time/date fields. You can also add text and voice attachments. Once you fill out the form by typing data in each field, you can print, e-mail, or fax the completed document.

That's fine — as far as it goes. Unless you are satisfied with Papyrus's limited number of ready-made templates, you need a facility for designing new forms or converting paper forms to digital files. PapyrusDesign is a basic layout program based on NeXT's Draw application. We don't usually comment on bugs in beta products, but since this app is a basic component of a shipping product, it is fair to note that flaws render it close



PapyrusForms stores form templates in its Stationery panel. Documents can include many data types and attachments.

PapyrusForms 1.0.1

PapyrusForms serves adequately as a system for storing and printing digital forms, but it falls short in design tools, database connectivity, and workgroup features.

\$245

Ensuing Technologies, 4220 S. Maryland Pkwy. #406B, Las Vegas, NV 89119. 702/792-6750; info@ensuing.com.

to unusable in this version. Ensuing says the full PapyrusDesign will ship in January.

The biggest gap is database functionality. The idea of forms management is not to type in every form manually, but to link the forms to databases for automatic data entry. In fact, forms are really just database report formats. While PapyrusForms provides rudimentary database functionality through its multiple-page capability and delimited-ASCII import and export functions, it is much less capable than programs such as Stone Design's DataPhile for maintaining data for output in forms. For instance, it has no facility for data validation.

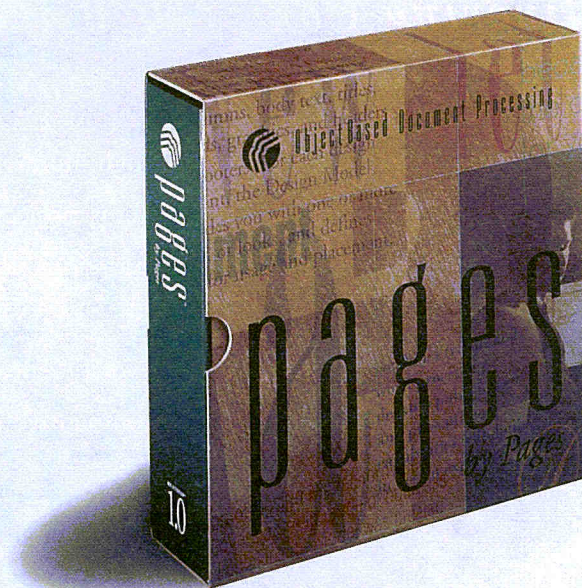
For output, PapyrusForms offers only one feature beyond the standard NEXTSTEP Print panel: the ability to suppress the background, allowing output to preprinted forms. That is useful, but we'd like to see more specialized output functions.

For linking its product to site-specific environments, Ensuing offers a set of three developer APIs. Some of these provide functionality, such as automatic date and time lookup, that should be included in the basic product. The PFSpeaker API allows PapyrusForms to be controlled by an external program.

PapyrusForms whets your appetite for what is possible in a NEXTSTEP forms package, but until Ensuing fills out the product with a complete design module and database functionality, DataPhile remains the better choice for NEXTSTEP forms processing.

by DAN RUBY

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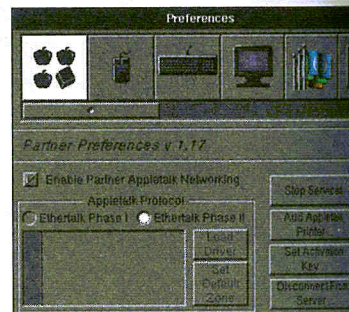
Mac-to-NeXT Partner

One of the features removed from NEXTSTEP 3.1 was the ability to mount files over the network from AppleShare servers. Although NeXT had introduced the feature with NEXTSTEP 3.0, the company's AppleShare client support never worked satisfactorily.

Now the connections can be made with Partner, from Information Presentation Technologies (IPT). Like NeXT's original client software, Partner enables NeXT machines to act as AppleShare clients on networks with AppleShare servers. Unlike NeXT's software, Partner works reliably on both small and large networks.

Partner is configured via a panel in the Preferences application. Once enabled, AppleTalk zones appear in /Net/AppleShare, listing AppleShare volumes within each zone. Selecting volumes in the File Viewer brings up a login panel for AppleShare user validation. With successful validation, Macintosh files appear in the File Viewer on your NEXTSTEP computer. You can read, write, and edit files that reside on AppleShare file systems and copy files between both systems.

Partner also includes support for AppleTalk printing through its uPrint module. AppleTalk printers are added through the Preferences



Partner uses the Preferences app to enable AppleTalk networking and select printers.

app, giving NEXTSTEP users a simple means to access the many PostScript devices that include built-in support for AppleTalk.

Users who need, however, to go the other way – access files or printers on NEXTSTEP computers from their Macintosh systems – should consider IPT's other product, uShare, which turns a NEXTSTEP computer into an AppleShare file server. NEXTSTEP computers can be very attractive AppleShare servers, since multitasking UNIX computers often have larger disks and faster CPUs, while moving network traffic faster than most Macintosh AppleShare servers.

Although we have seen no problems using Partner and uShare in small- to medium-sized networks of Macintosh computers and NeXT machines, some users on the Internet have claimed that, due to NFS server conflicts, NeXT's NetWare client and Partner do not work together properly. We were not able to duplicate these reports. These problems, if they exist at all, may be the fault of IPT or NeXT – or they may be the result of improper installation. Because they push the edge of heterogeneous networking, Partner and uShare can reveal cracks in the inter-networking system. In the past, IPT has earned a solid reputation for being responsive to user's problems, providing workarounds and fixing bugs.

We evaluated Partner and uShare on NeXT black hardware. NEXTSTEP-for-Intel versions are under development and should be available soon. ♦

by JOE BARELLO

Partner 1.17



Mounts AppleShare volumes under the NEXTSTEP file system, enabling you to read and write files on Macintosh computer networks. With included uPrint software, NEXTSTEP applications can print to AppleTalk printers via the standard Print panel.

\$149 Partner on one NEXTSTEP client (includes uPrint)

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Rd., Toronto, Ontario M4W 1
416/928-5057.

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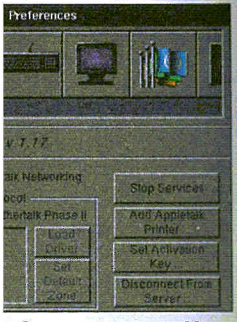
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The Northern Parallel Software, 8 Binscarth Rd., Toronto, Ontario M4W 1Y1 Canada. 416/928-5057.

NEXTSTEP users love the on-line Webster's, but that old war-horse of a reference hasn't been updated since it was introduced in Version 1.0 of the OS – and it's little help for specialized information. So leave it to some canny Canadians to keep users up-to-date on the finer points of language with on-line versions of three name-brand dictionaries: Oxford for computing, Barron's for finance, and the Hacker's Lexicon for, well, hacking. Users can hunt for words or phrases by definition, all appearances in the dictionary, or matching terms, with the dictionaries offering possibilities if the original request isn't found. Unlike Webster's, the apps use smart hyper-text buttons that let you jump quickly between related definitions, allowing you to exhaustively re-search a topic through related terms. (Some links were curiously absent in the version we tested.) If you're not sure of a spelling, there's an alphabetical listing of all terms as well. And like their venerable counterpart, these dictionaries allow you to look up a word in any application that uses NEXTSTEP's Services facility. For some fun, check out the animated icons or call up the Info panels. **EB**

ImageIt 1.0
◆◆◆◆◆
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BenaTong, 1057 Racine Ave., Columbus, OH 43204. 614/276-7859; info@BenaTong.com.

ImageIt, written by Vanguard Software, is the most feature-rich object for displaying images that we've seen to date. Fully compatible with DBImageView, ImageIt will display images any way you want: scaled, flipped, rotated, zoomed, or with a background. Images can be dragged in or out. What's more, the palette understands NEXTSTEP's filter ser-

REVIEWS
Reviews Desk

Included in this month's desk are examples of vendor's listening to their users and the market. As Mesa grew in features, users wanted a basic version; Athena answered with a lower-priced personal iteration called Sunrise. Metrosoft gives us another round in the continuously improving MetroTools. The Northern Parallel dictionaries start where Webster's left off, and Rocks! is another entry into the games-starved NEXTSTEP marketplace. – DAN LAVIN

This month's gang includes ELIOT BERGSON (EB), ROHIT KHARE (RK), SIMSON L. GARFINKEL (SLG), AND ME, AL FRANKEN (DL).

vices. The object's license grants unlimited internal use; use of ImageIt in a commercial application must be specially negotiated with BenaTong. We love it. **SLG**

Mesa Sunrise 1.5
◆◆◆◆◆
\$349
Athena Design 17 St. Mary's Ct., Boston, MA 02146. 617/734-6372; info@athena.com.

Athena Design bills Mesa Sunrise as the "personal edition of Mesa," so Sunrise lacks Mesa's ability to access real-time data feeds and SQL databases (see "Dueling Spreadsheets," August 1993). Also gone is Mesa's AddIn feature, which means that you can't add your own functions, and the Mesa Object Library Interface, which means you can't build Sunrise into your own custom applications. That leaves you with a fast, traditional spreadsheet for considerably less money, which should be sufficient for most uses. Unlike Mesa, Sunrise comes with just four months of free technical support. **SLG**

MetroTools 2.1
◆◆◆◆◆
\$89 list; \$69 educational
Metrosoft, 740 Thirteenth St. #503, San Diego CA 92101. 619/488-9411; info@metrosoft.com.

MetroTools 2.1 is a collection of six basic utilities wrapped in a single application for anyone who'd rather not confront UNIX gremlins. Since we last looked at Tools in Version 1.1, Metrosoft has added features and addressed several of our concerns from earlier reviews. Enhancements include MultiModule and audio support in the screen-

saver module. The Dock extender is highly flexible and exceptionally easy to use, and includes icons you can miniaturize for laptops. The File Locator actually works (in contrast to Workspace Manager's), but we did not see a big benefit in using the Archiver. Font Installer and Sound Importer work with NeXT- and Mac-style resources with grace and ease, while a future (free) upgrade will handle PC sounds and fonts. Metrosoft has provided updates for only the cost of materials and offers free technical support. **RK**

Rocks! 1.8

◆◆◆◆◆
\$35
SmartSoft, 2220 E. Linnwood Ave., Milwaukee, WI 53211. 414/964-8864, 800/424-8864.

Rocks! is an asteroids-type arcade game for the NeXT that has engaging graphics and a relatively large variety of hazards and special weapons that add interest for any computer-games player. Rocks! suffers, though, from fairly serious performance issues, ranging from sluggish controls to random changes in speed depending on how many objects are moving on the screen. (We found the same problems on both standard and Turbo NeXTstations; we didn't test the Intel version that was in beta at press time.) The game is playable and reasonably priced, however, and must rate among the best of the small handful of games available under NEXTSTEP. **DL, SLG**



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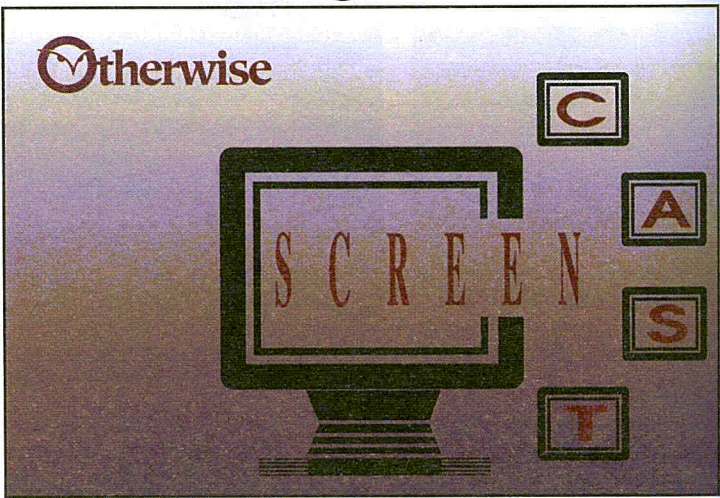
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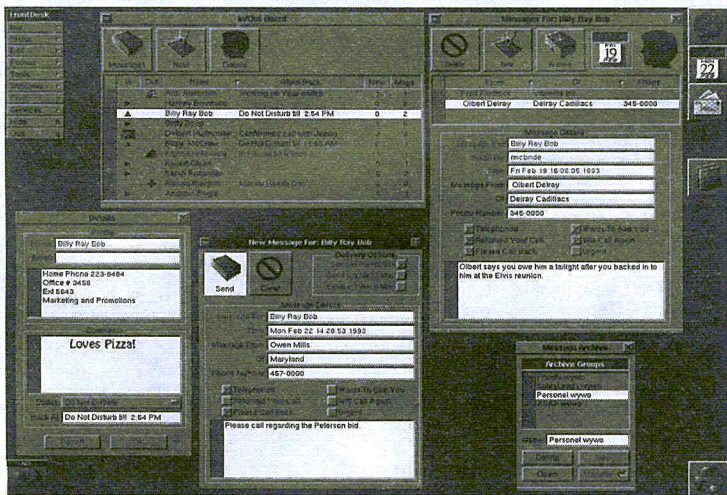


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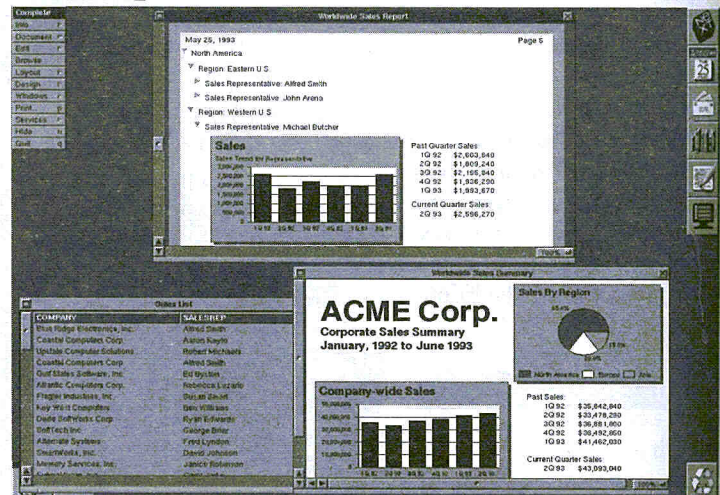


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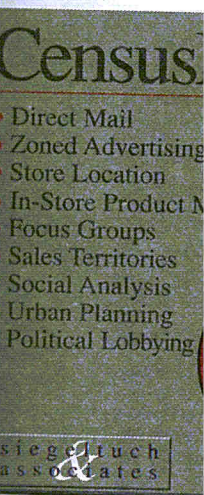
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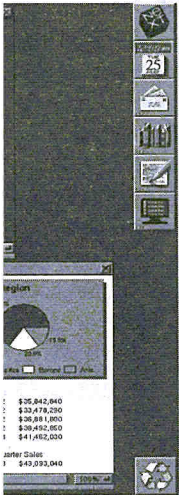
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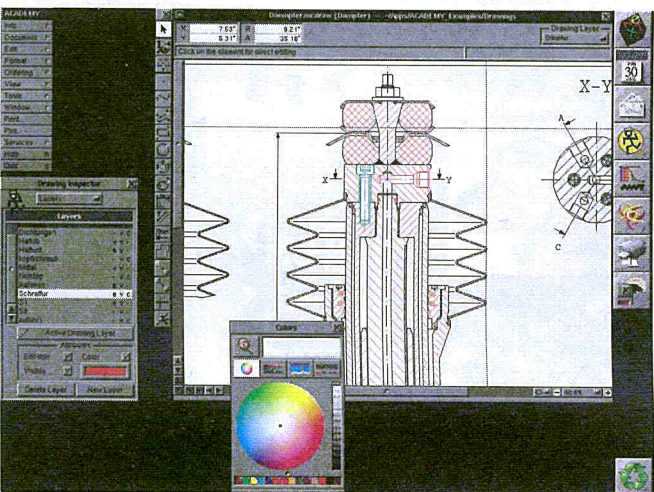
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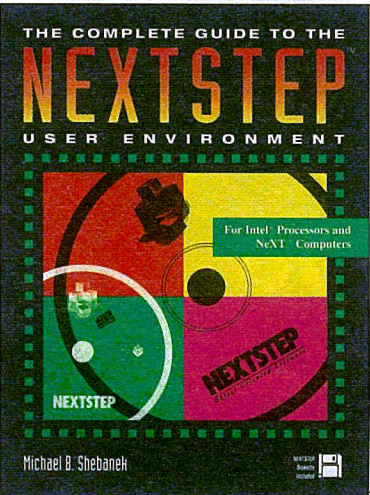


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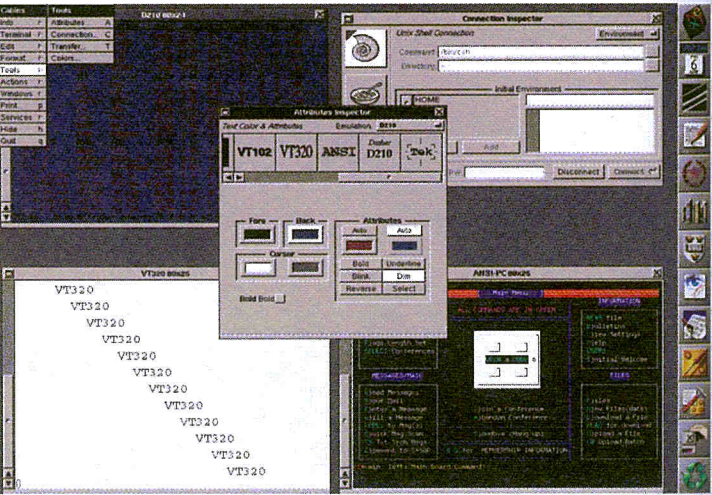
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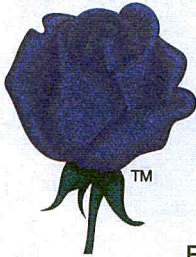
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Circle 81 on reader service card

About five years ago, when I left the cattle business and took up such smoke shoveling as you find me engaged in here, I was intrigued by the myth of Steve Jobs and the drama of his dealings with John Sculley. I thought that their story might tell us something about the future of our collective endeavor.

Of course, I didn't know beans about either one of them, but there was something about their caricatures, the barefoot visionary and the thin-lipped Prince of Sugar Water, that rattled something deep inside me. I pumped them so full of my own imaginative gases that their struggles came to seem Homeric. Steve was Achilles, sulking outside the walls of Apple, his heroic heart, though shredded by the cold claws of organizational efficiency, still beating strong with the idea that the personal computer might free modern workers from corporate bondage.

I thought of Apple under Jobs as being somewhere between a cybertribe and a techno-commune, literally dreaming up tools that embodied a sense of mission far more potent than mere productivity solutions. I arrogantly dismissed Sculley as a tool himself, a brittle bottom-liner who would make Apple into another bland corporate engine.

I shudder at these cartoon images now. In the years since I sketched them as mythic characters, I've gotten to know Jobs and Sculley as human beings. They are both complex and interesting people, each large in intellect and imperfection. Jobs is far more expedient than I once thought, and Sculley turns out to be a genuine visionary, despite a personal delivery that can seem about as spell binding as golf on television.

Their old epic, once so compelling to me, returned to mind the other day when I heard that Sculley had resigned as Apple's CEO. Into his place diesels Eurodroid Michael Spindler, a man whose unsentimental manage-

ment style will make Sculley look like Percy Bysshe Shelley in no time. I cannot imagine Spindler dreaming about anything but victory.

This news landed like a flat stone on mud. There was nothing in it to inspire imagination; it was just something that happened. I realized suddenly how little room there is for myth, or drama, or even dreams in the computer business as it's once again come to be.

Apple differs from other large California-based companies only in being a harsher place to work than most. It is less interested in changing the world than remaining in it. There remains something heroic about both NeXT and Jobs, but only in the sense that they are running head-on at mean and mighty Microsoft. Even there I have a hard time getting my heart above a resting pulse. What, outside of survival, is the point?

If NeXT survives, which I now believe it can do, it's hard to imagine that the world will be better or even visibly different. I'm as likely to get emotional about NEXTSTEP as I would be over the future

of any number of Smalltalk development environments.

Over the long run, I wonder if either company can survive long without that almost religious sense of attachment their early customers brought to them. Buying a Macintosh or a NeXT was once a statement of devout personal belief against which people were willing to put out some additional cash. Without that poetry, what remains to set Apple apart from Dell, or NeXT apart from the Santa Cruz Operation?

Everything changes, I know. But it seems that the computer business has lost its heart. There aren't many stories worth hearing or telling these days. But maybe that's the way business is supposed to be. ♦

JOHN PERRY BARLOW's *odyssey continues here each month.*

Bureaucratic Maze

NEXT GAMES

by SCOTT KIM

One of the simplest and most useful NeXT applications is Lighthouse Design's Diagram! 2, a program for drawing simple boxes and arrows to produce flowcharts and organizational plans. Of course, you can create such diagrams in an ordinary drawing program, but Diagram! makes it easier to keep boxes labeled and arrows connected without having to bother with the details.

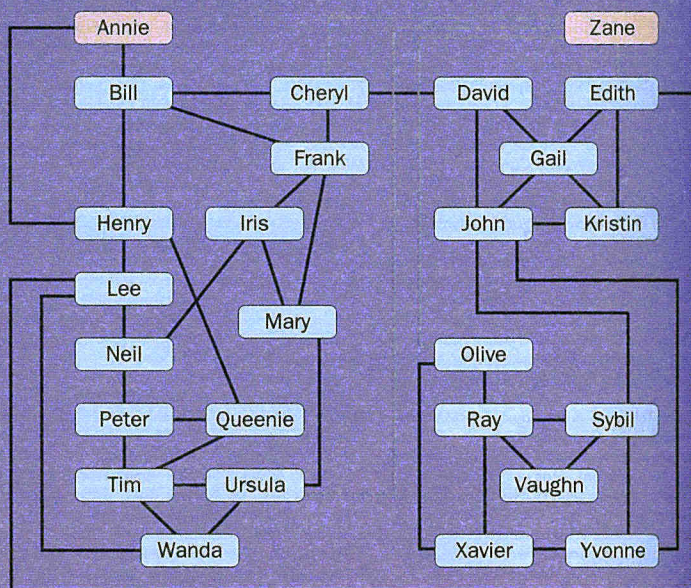
CONTEST

Here is the organizational chart of Reorgs R Us. Your challenge is to get from Annie to Zane by moving along the lines that connect people, passing through every person just once along the way. You can move up or down the hierarchy, but you may not jump to a person that is not connected by a line. Lastly, Neil must precede Tim, and Frank must precede Iris. Write your answers in the spaces at right.

Up to ten lucky winners will receive a NeXTWORLD T-shirt. Address entries to Puzzle Editor, NeXTWORLD, 501 Second St., San Francisco, CA 94107. Or fax us at 415/978-3196. And while you're at it, write us a note about the magazine. Entries must be received by October 15, 1993.

The answers to "Secret Formulas" in the August issue are:

A2=A1+A3-4	B2=(A2-3)*(C2-1)	3	2	5
B1=C1-A1	C2=(C1-1)*(C3-6)	6	33	12
B3=(B1*B2)-2		7	64	9



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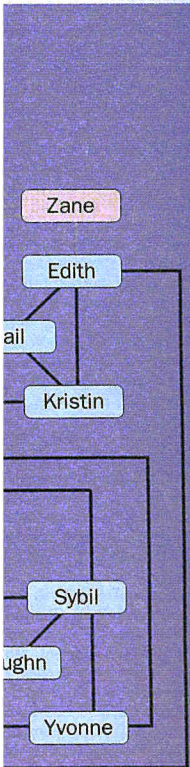
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Circle 97 on reader service card

* "The CW Guide to Servers: Buyers' Scorecard," Computerworld, March 22, 1993.

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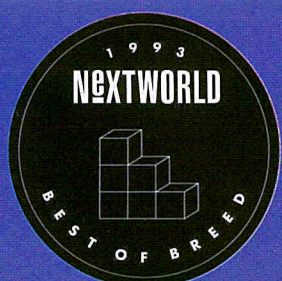
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